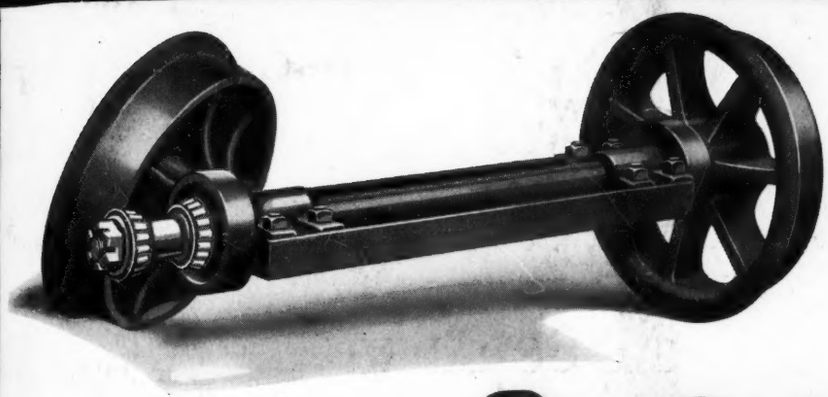
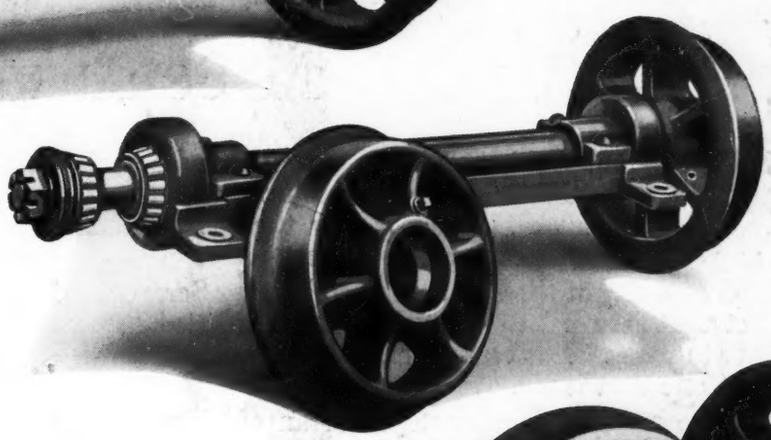
Note the Description of a Submersible Pump Room on Pages 257 and 258

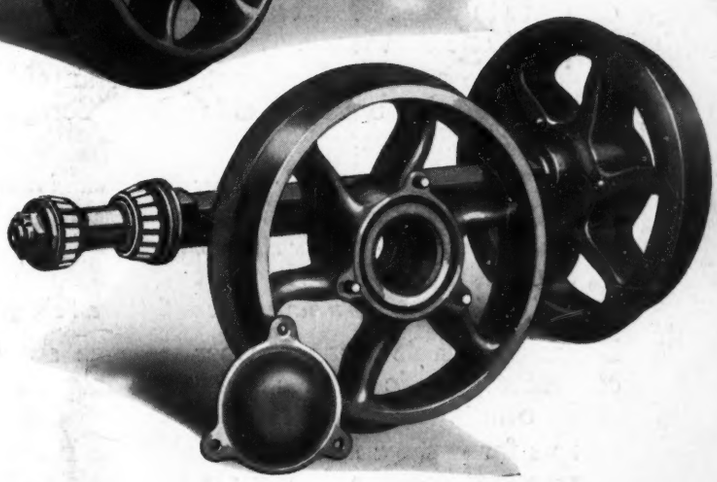
COAL AGE



Timken Bearing-equipped mine car axle made by the Phillips Mine & Mill Supply Co., of Pittsburg, Pa.



Timken Bearing-equipped mine car axle made by the Louisville Car Wheel & Railway Supply Co., of Louisville, Kentucky



Timken Bearing-equipped mine car axle made by the Fulton Pit Car Co., of Canal Fulton, Ohio

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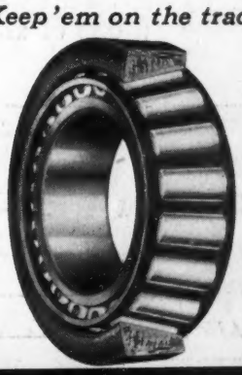
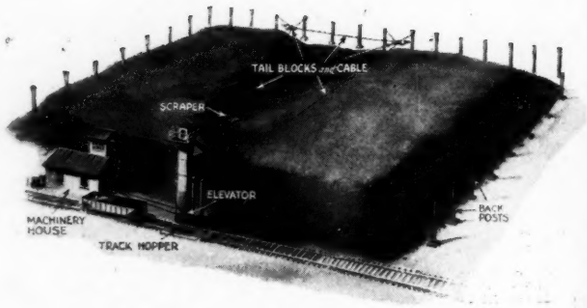
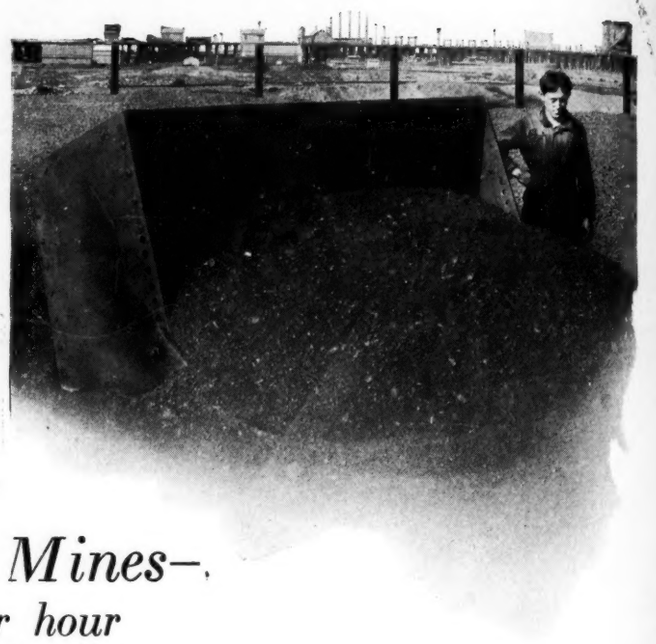




Note extreme simplicity of Beaumont Cable Drag Scraper system for coal storage. Few moving parts—no complicated machinery.



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COAL AGE

The Only National Paper Devoted to Coal Mining and Coal Marketing

C. E. LESHER, *Editor*

Volume 23 NEW YORK, THURSDAY, FEBRUARY 8, 1923 Number 6

Overdevelopment and Nationalization

IN HIS annual report Director Bain of the Bureau of Mines points out and decries the tendency of the West—that is, the public-land states—to so increase coal-mine development beyond current needs and thus "to bring about the same unhealthy condition [that is to say, overdevelopment] in the West, the same loss of capital and distress among miners that was so marked a feature of 1921 in the East and Middle West." Mr. Bain thinks that the federal government should be given some discretion in granting extension to the coal-mine development of the public-land states.

On another page we publish the protests of a correspondent from Lewis County, Washington, against talk of the coal industry being overdeveloped, in so far as his part of the world is concerned. Mr. McBride holds that the West is not overdeveloped, that it needs more coal mines—especially larger, better operations. He regrets that this charge has been spread over the West, hindering acquisition of new capital. We have heard operators in the East as well express the wish that the Coal Commission had not publicly advised against investment in the soft-coal industry.

Director Bain points out that, "taking into account all mines now operating on private lands and government leases, there will be built up within two years in thirteen Western states a mine capacity of 80,000,000 tons, whereas the maximum war-time market for coal from these states was 40,000,000 tons, and is now less." Remedial legislation obviously would take the form of permitting the withholding of coal leases on public lands. The present Secretary of the Interior, Mr. Fall, apparently has held that the leasing law compels the department to give all applicants the coal lands they desire to lease, although, as Mr. Bain points out: "The department cannot, however, without violation of the plain intent of the law, grant leases without setting up requirements as to minimum production per annum. It was clearly not the intent of Congress that leases should be granted to tie up land for long periods for speculative purposes. So each lease granted must require the mining of a minimum amount of coal per year and the giving of effective bond for performance. The results that flow from this seem to have been overlooked by the lessees and others."

The West is not overdeveloped, at least not notoriously so. When in the boom year of 1920 the soft-coal mines of the country as a whole averaged but 220 days' operation, Montana did 250 days, New Mexico 302, Wyoming 264, Colorado 255, and Washington 260, although Lewis County, in which Mr. McBride operates, did but 201 days. Such comparatively good records of operation do not indicate a great superfluity of coal mines. On the other hand, this winter, while the East is experiencing a car shortage and prices to suit, the Far West is chalk-up time lost because of "no market."

We quite agree with Director Bain's general theory —that the coal industry of the West is storing up future grief for itself when it doubles its capacity in two years. The industry is far better off when production on a full working schedule more nearly matches demand. Were the federal government to undertake to hold back the granting of leases on public lands on any pretext of saving the industry from itself, the protest would be loud and long. While the East is debating nationalization of coal and stewing over ways and means of curing overdevelopment and irregular operation, there lies within our hands a nationalized piece of this self-same industry.

Under the leasing measure, we retain title to the coal and rule through bureaus at Washington on how the coal shall be mined, even as in France.

If we, the American people, through our Congress, want to exercise our rights of ownership, we can do whatever we desire with these public coal lands of the Far West. Is it not significant of the temper of the country that these lands are being turned over to private enterprise even as the farmer-owned lands of the East?

Knuckling of Mine Cars

SO MANY are the causes of derailments that one cannot wonder that A. S. Brosky omits one of them in his interesting article that we publish this week. Too many mine engineers design changes in the vertical alignment of track in a manner in which they would never design horizontal changes. That is, they will allow their vertical alignments, or gradients, to meet in a sharp peak but will insert curves between their horizontal alignments. Every important change of grade, every knuckle or dip, should be carefully and deliberately rounded off so that one car cannot be on one gradient and the next on an entirely different one.

This provision is more important in mines than on a railroad, because it is customary to provide in the former case that the overhang of the end of the car shall be as long as the wheelbase or, what is the same, that the car shall be three times the length of the distance between axle centers. This seems also to be the English rule. No one knows why this relationship has become established. Certain it is that knuckles in the track would have a less injurious effect if the wheels of mine wagons, as in railroad cars, were placed near the bumpers. Unfortunately, however, the tendency is all the other way. Two cars, recently illustrated in *Coal Age*, one in use in Montana and the other in West Virginia, were 4.1 times as long as their wheelbases. At a mine in Tennessee two separate types of cars had this ratio as high as 5:1. In the last two instances the overhang was more than twice as long as the wheelbase.

Any given change in gradient or any irregularity in the track such as an uneven joint will cause a greater movement at the bumpers than would occur if railroad practice as to the location of the wheel support were

followed. Should the bumpers fail to slip past each other, as they may when the trip is being pushed or held back on a steep grade, then the end of the car needing such a movement to adjust itself to changing track conditions on seeking to go downward might be lifted off the track, or in seeking to rise might tilt the end of the car nearest it, or tilt its own opposite end upward, provided the movement between bumpers at that end is not sufficiently restrained by the weight of the car and the bumper resistance.

Cars with a liberal overhang have the advantage that they can be more readily turned on a sharp room switch and can be more speedily replaced when they leave the track, but they can be detracked with equal ease, and the question arises whether it would not be better to use a longer wheelbase and make the turns into the rooms of somewhat greater radius. Fortunately the necessity for moving mining machines and still more power loaders into rooms is making managements more favorable to the use of easier room curves, but this has been accompanied by an increase in the length of cars, so that what has been gained in one direction has been lost in another.

Submerged Pumprooms

SUCTION will lift water only about 25 ft. in practical operation. It is necessary, therefore, to place pumps down close to the bottom of the mine that they are to keep free from water. Unfortunately, if the water rises, the pump is soon flooded and useless. Of course, pumps can be built that can be operated from the surface. The old Cornish pump was of this description. The engine was placed near the rim of the shaft and long pump rods descended almost to the sump and operated the pump below. This pump would be operated no matter how high the water might rise.

The long pump rods were in the way, and in America this arrangement has not been popular. The tendency has been to put the prime mover near the pump, but that meant keeping the water down below the pumping equipment or losing the use of it whenever a severe flood occurred. At first steam for the engine was passed down the shaft in pipes, but this was not desirable, for an important loss of pressure resulted and, where the shaft was lined with timber, fires were likely to break out from the heat of the steam.

When electricity was introduced it was carried down to a motor, but with electrical machinery placed at such a low level much risk was run that it would be submerged and when the water had been pumped out by some other means the motor might have to be hoisted to the surface, overhauled and baked in an oven to free it from moisture. Consequently some means to prevent the pumproom from being flooded seems desirable. Of course, with much standby capacity and large storage this difficulty might be met. If the pump failed or the water came in too fast for the main pump, another unit that was in condition could be put into operation. In case of a pump failure this might be successful in keeping down the water, but if the inadequacy was due to an excessive flood or if the flood came during a pump failure, then submergence of the pumps might not be avoided. Consequently the difficulty was not satisfactorily solved.

It was from a realization of this difficulty that the submerged pumproom resulted. In *Coal Age* this week D. C. Ashmead describes such a provision. Here the standby capacity is four times as great as that of the pump that is normally in operation; there are two pumps each twice as big as the unit on which the management relies for meeting the daily drainage needs of the mine. Nevertheless this large provision is made yet more ample by providing that until the water rises to the bed 120 ft. above, the pumproom will not be flooded. Even then by erecting a further dam it will be possible to go on pumping, utilizing the area in the second seam as storage for more water.

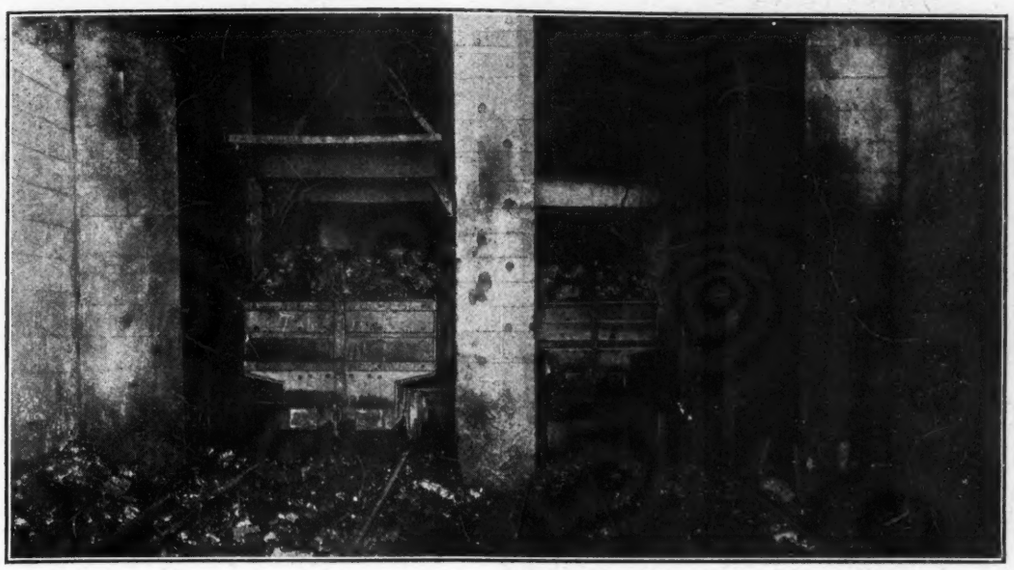
In August, 1920, the American Institute of Mining and Metallurgical Engineers visited the Athens mine, in the iron regions. The shaft of this mine is 2,489 ft. deep. At the bottom, or 2,400-ft. level, a pump was placed in a chamber to which access was obtained through a steel bulkhead, which, when closed, would make it possible for water to rise 100 ft. to the next level before flooding the pumproom, which could be approached by a "blind or staple" shaft, to use the language of our British cousins. The pipe entered the pumproom through the bulkhead, so that water could reach the pump but not flood the chamber in which the pumping was done. This was described in an article which appeared in *Coal Age*, Vol. 18, p. 532.

In the Gray slope the access to the pumps is not through a staple shaft but by a rock tunnel, but the principle is much the same. It will be noted that the only loss of power incurred by putting the pump thus low arises from friction, for the water entering the pump has the static head of the water above it—whenever it is above it—and so lessens the work that the pump must perform.

For this reason it might seem well to keep the pumproom where it will always be submerged, for by this means no difficulty ever will be experienced in making the pump take water. It will not have to pick up its water, for the water will flow under pressure to it. This advantage, however, has not been used in the Gray slope, but it seems worth considering.

It would seem that the advantage of this system is not confined to shafts. Even in slope mines, and perhaps in some drift mines, it might be used with advantage, not only to avoid starting difficulties but to prevent the flooding of the pumproom. A bulkhead could be placed above the level of the seam ready for use if the mines were completely flooded. Through this bulkhead entrance to the pumproom could be obtained. Should the flood rise above the bulkhead it could be closed and entry be made by a shaft from some higher seam, down which men could be lowered if necessary. With modern electrical equipment, however, it might be possible to leave the machinery to its own electrical devices, especially if the motor were designed so as not to heat excessively even with continuous running. All motors that are needed for pumping where flooding is feared, no matter what the circumstances may be, should be so designed.

THE COAL COMMISSION named by the President to investigate the coal industry in America is pushing forward its work with commendable speed, and promises to make its report before April 1, the expiration of the present agreement. We hope the commission will make its report as short as possible; it can add all the statistical tables it desires. It is most important the public come to an understanding of the coal problem in America, and this understanding can best be reached through a short, concise summing up.—*Louisville Evening Post.*



Zeigler No. 2 Adopts Cage Hoist and Raises Seventeen Tons per Minute with Ease

Cars Hold Five Tons—Seven Dumps Made in Two Minutes—Reciprocating Screen Plate Under Bins Resizes Nut Before Loading—Degradation Returns to Rescreener — Fuel Coal and Ashes Handled by Same Conveyor

BY FRANK H. KNEELAND*
New York City

FROM the standpoint of daily output per single producing mine opening few coal plants can compete with those of the Bell & Zoller Mining Co., at Zeigler, Ill. During the month of March, 1922, Mine No. 1 produced, so far as is known, the largest monthly output of any mine in the world, the total output for the month being 164,109 tons, or an average of 6,078 tons per working day.

Mine No. 1 is an old operation, the shaft having been sunk many years ago. At the opposite end of the town lies Mine No. 2. This is a new development which has been hoisting coal for only about a year. Probably in no coal field in the world is competition more keen, nor is the preparation of bituminous coal carried further than in southern Illinois. Inasmuch as all profit, if any is made, is derived from the larger sizes of coal, every effort is made to keep down degradation. For this reason the practice at Zeigler No. 1 of discharging the coal from the mine cars by means of a rotary dump and hoisting it in a skip has been abandoned at No. 2 mine. This latter operation has self-dumping cages operated in balance in the usual manner.

The coal hoist installed at this mine consists of a pair of 28x42-in. Litchfield engines direct connected to an 8-ft. cylindrical drum. It is fitted with a steam brake and steam-actuated reversing mechanism. The rope is 1⅜ in. in diameter. The cages are hoisted at this shaft with unusual rapidity. What the hoistman might be

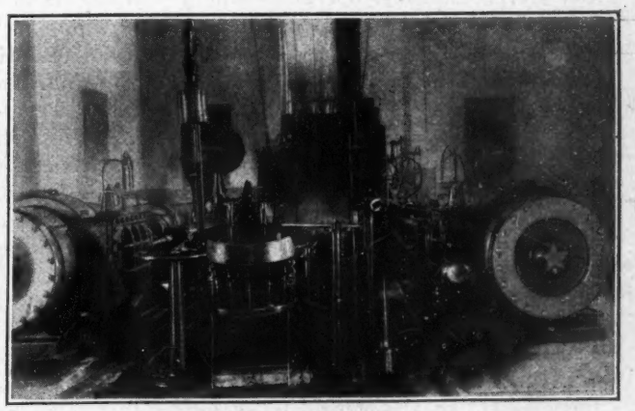


FIG. 1—HOISTING ENGINE, ZEIGLER NO. 2
This engine is lifting cages containing 4.9 tons of coal at such a speed that seven dumps are made in 2 minutes—that is 3½ cars are discharged per minute. This is done without any unusual effort but owing to the lack of men it is not possible to feed the coal continuously to the shaft so that the output of over 8,232 tons per day which this speed of hoisting would indicate can be attained.

*Associate Editor, *Coal Age*.

NOTE—Headpiece shows foot of hoisting shaft, Zeigler No. 2. This view is taken from the empty-car tracks of the bottom. The car on the left is on the cage, which is standing at the landing. The car on the right is on the far side of the shaft ready to pass onto the cage when it descends.

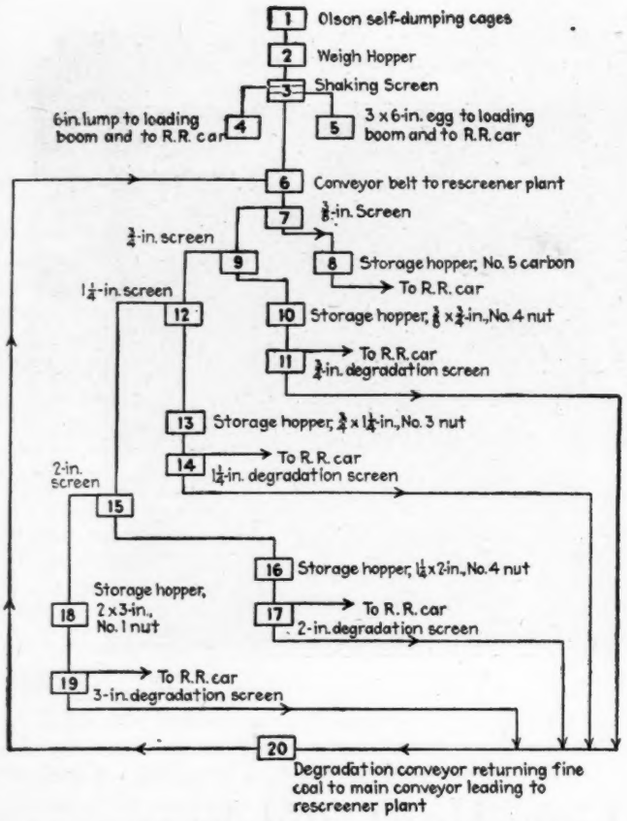


FIG. 2—FLOW SHEET OF TIPPLE AND RESCREENER

In the tipple is made a lump coal which passes over a 6-in. screen and an egg which passes through that screen and refuses to pass through one with 3-in. openings—3x6-in. egg, it is termed. In the rescreener is made nut coals which will be held on 2-in., 1¼-in., ¾-in. and ⅜-in. screens and a fine coal known as No. 5, or carbon, that passes through the ⅜-in. openings.

able to do if he tried his utmost is unknown, but in the course of an ordinary day's run an average of seven dumps in 2 minutes or, what is the same, of 3½ cars per minute, is not in the least uncommon.

When it is considered that the cars are of 5 tons nominal capacity and normally are loaded each with about 4.9 tons of coal, the daily possibilities of this mine become immediately apparent. Seeing that this speed of hoisting can be easily attained even though it be for only short intervals under present conditions, it would appear that when both organization and mine are tuned up to "concert pitch," as was Mine No. 1 during last March, the older operation will do well to look to its laurels.

At this operation the usual southern Illinois practice of making in the tipple proper only two sizes—6-in. lump. and 3x6-in. egg—has been followed. The flow sheet, or sequence of operations performed, may be seen in the illustration above (Fig. 2). The process of preparation is as follows: From the Olson self-dumping cages (1) the coal is discharged to a weigh hopper (2), from which it is discharged to the shaker screen (3). This screen has two sizes of openings—3 and 6 in. The coal that passes through the 3-in. openings is directed to the conveyor belt (6) leading to the rescreener plant. The coal that passes over the 3-in. openings but through the 6-in. perforations is known as 3x6-in. egg and goes immediately to the railroad car by way of a picking table and loading boom. That portion of the mine product that goes over the 6-in. circular opening of the tipple screen is known as 6-in. lump, and it also is loaded under the tipple after being passed over a picking table and loading boom.

Turning now to the coal that passes through the 3-in. openings in the first shaker, the belt conveyor, to which reference has already been made, delivers this to the rescreener plant, which is a separate building standing at some distance from the tipple proper. Here the coal is passed successively over ⅜-, ¾-, 1¼ and 2-in. screen openings, the five sizes thus made being known as No. 5, or carbon, and Nos. 4, 3, 2 and 1 nut coal.

On either side of the rescreener plant is placed a row of five storage hoppers, each having a capacity of 150 tons. Under each hopper is a reciprocating plate feeder. In all cases except that of the No. 5 carbon this plate is perforated with holes of the same diameter as those over which that particular size of coal was made, the plate thus forming an efficient degradation screen. Obviously the bins containing the No. 5 "carbon" require no such screen.

After passing through the ⅜-in. screen (7) the No. 5 or "carbon" goes to its storage hopper (8) and thence to the railroad car. Material passing over this screen goes to one with ¾-in. openings (9). The coal passing through this screen goes to the No. 4 nut hopper (10) and thence over the ¾-in. degradation screen (11) to the railroad car for shipment. Degraded coal passing through the openings of this screen (11) goes to the degradation conveyor (20), which returns it together with that from all the other degradation screens to the main conveyor leading to the rescreener plant.

Further description of rescreening operations hardly will be necessary, as the various processes are all similar and should be obvious from the flow sheet. It should be stated, however, that the rescreener building stands alongside the power plant and that provision accordingly is made to supply fuel to this plant direct—that is, by a coal spout leading into the basement of the boiler room. Of this arrangement more will be said later.

Two railroad tracks pass beneath the rescreener plant, one under each row of bins. The capacity of each bin (150 tons) is sufficient to assure the prompt loading of any car that may be placed beneath any particular bin. Furthermore, the contents of such a car will be as free from degradation products as it is possible to render it. In general both tipple and rescreener plant are of steel construction, only the floors being of wood. Ample window space gives the tipple plenty of light.

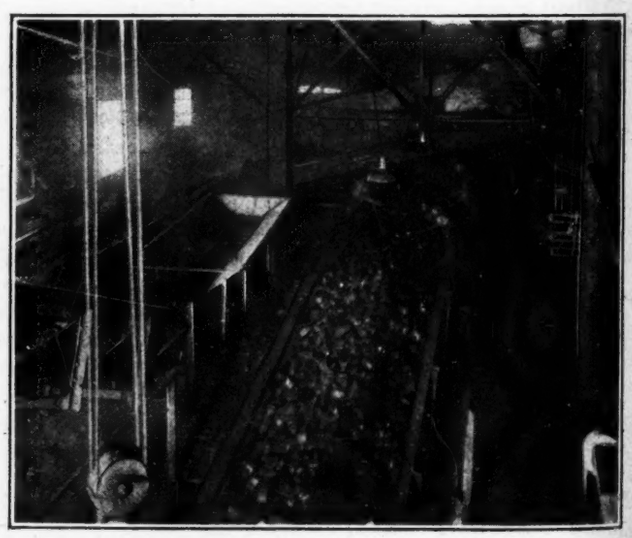


FIG. 3—CLEANING EGG COAL ON THE PICKING TABLE

The front end shows the loading boom to which the table leads and by which the egg coal is taken to the railroad cars.

So much for the coal-preparation plant proper. The surface works at this mine include a power plant, the necessary shops, a wash house, fan and fan house, and the headframe surmounting the man-and-material shaft, together with the man hoist and the structure that houses it. All of these buildings are of a permanent and substantial nature, fireproof materials (except in case of some floors) being exclusively employed.

The power house consists of two distinct units, boiler room and engine room, separated from each other by a partition. The building is constructed of brick, steel and glass and rests on a concrete foundation. In the boiler room six 366-hp. Heine boilers are installed. These are set in batteries of two each and are provided with Green chain-grate stokers. Four of these boilers are set with a height of 7 ft. from top of stoker rail to bottom of front water leg. In the other two boilers the height has been increased to 10 ft., thus affording a larger combustion space between the grate and tubes. When burning a fuel as high in volatile matter as the coals of southern Illinois an ample combustion space is highly advantageous, particularly when the boilers are being forced beyond their rated capacity.

The stokers under these boilers are all 8 ft. wide. Their length in four of the boilers is 9 ft. and in the other two 10 ft. All the stokers are driven from a line shaft beneath the floor, the eccentric rods extending upward through slots in the floor beside the stoker rails. Two small vertical steam engines drive the line shaft through a belt. Only one engine is required at a time, the other being held as a spare.

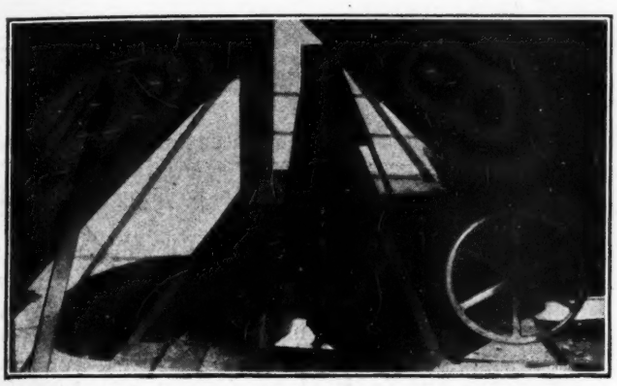


FIG. 4—NUT COAL BEING RESIZED BEFORE LOADING

In the anthracite region the coal drawn from the various bins passes over lip screens to remove degraded material. Soft coal is similarly degraded, and so, at Zeigler No. 2, all the nut bins are fitted at the bottom with reciprocating plate feeders which are perforated so that all material below standard size will be removed. The undersize goes back to the rescreener. The anthracite and the Illinois regions have this in common that in both unusual care is taken to size the coal scrupulously for the market.

Hopper-bottomed overhead steel bunkers supply coal to the stokers through movable downcomer pipes. Reference already has been made to the fact that coal from the rescreener plant is spouted direct into the basement of the boiler room. Here it is delivered to a Peck carrier that forms a vertical loop extending completely around the entire bunker installation. The path of this conveyor is practically rectangular, consisting of two vertical and two horizontal parts. The two vertical parts parallel the two ends of the boiler room; one horizontal part extends above the coal bunkers, the other below and in front of the ashpit doors in the basement. The carrier buckets are so arranged that they will discharge their contents at any desired point.

By means of this carrier, coal delivered to the basement of the building is discharged to any bunker desired. Ashes removed from the boiler ashpits are carried horizontally to the end of the building and then elevated to a point near the top, where they are discharged and spouted to an ash bin outside. From this bin they are hauled away by wagon or truck and are used in grading about the plant, in surfacing the dirt roads in the vicinity or for any other purpose to which they may be adapted. The carrier thus not only fuels the plant but removes the ashes as well, both operations being entirely mechanical.

FIG. 5—ZEIGLER NO. 2, A LEADER IN BOILER PRACTICE

Chain-grate stokers and combustion chambers of the generous height suited to a high-volatile coal such as Illinois produces reduce the cost of power production. In order to make sure that coal will be delivered without interruption even the engine driving these stokers has its spare unit. These boilers have a capacity of 2,196 hp.

Three centrifugal pumps feed the boilers. These are installed in the basement of the boiler room and consist of two Manistee Roturbo machines driven through direct connection by Moore steam turbines; also a similar pump direct connected to a Terry turbine. In addition to these centrifugal units two steam piston pumps have been installed, one of which lifts water from the storage dam to an elevated tank. The other supplies the feed-water heater.

Before being fed to the boilers all feed water passes through a 3,500-hp. open feed-water heater. The two newer boiler units are fitted with a device that regulates the dampers automatically, and it is intended eventually to control the draft of all the boilers in like manner. Natural draft is furnished by a brick stack 13 ft. 6 in. in internal diameter and 225 ft. high.

Within the engine room three generating units have been installed, together with the necessary switchboards, electrical instruments and control devices. These com-

FIG. 6—FORGE SHOP HAS EVERY NEEDED DETAIL

Large cars, machine cutting and large operation are daily demanding more and more of the blacksmith shop. Mule shoeing and pick sharpening made far smaller demands on equipment than does the varied work of the modern shop.

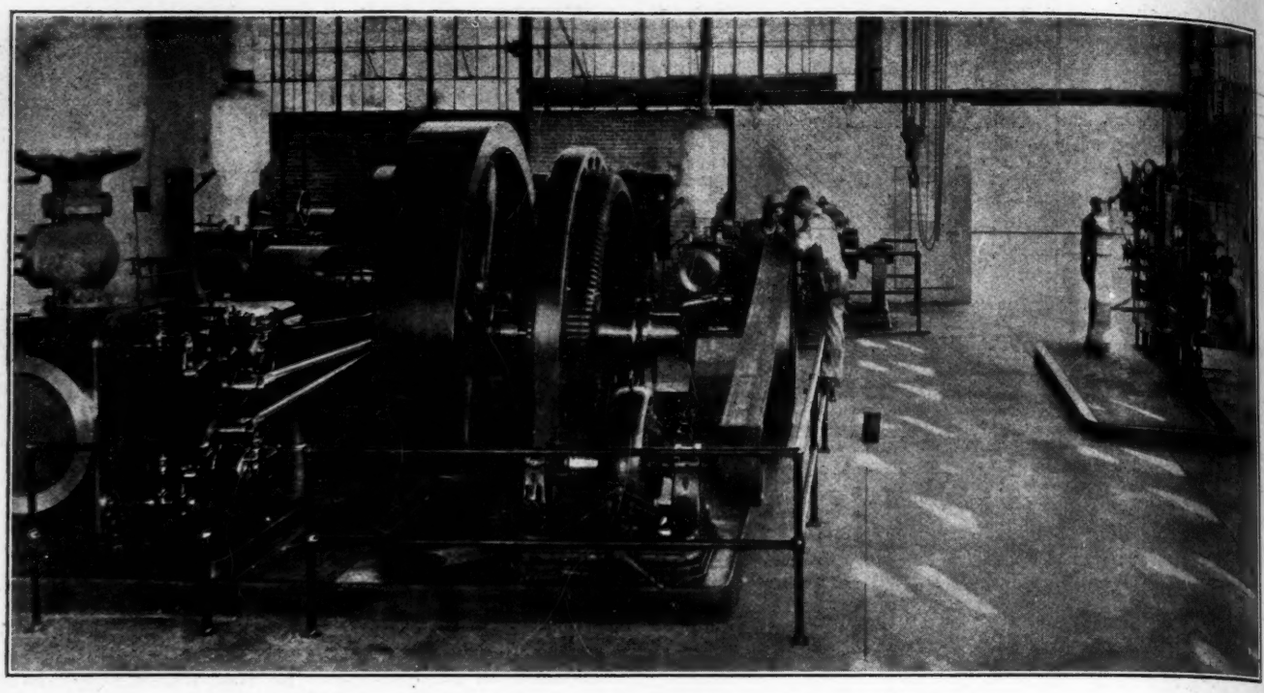


FIG. 4—HIGH-SPEED ENGINES DRIVE ELECTRICAL MACHINES
At Zeigler No. 2, economy in the production of steam is no less marked than the frugality exhibited in the use of it. The three units have an aggregate capacity of 959 kw. They soon will be supplemented by a turbine-driven unit. The two electrical units in the rearground are direct-current generators. That in the foreground is an alternating-current generator.

prise one Sprague 300-kw. 1090-amp. 250- to 275-volt direct-current generator direct connected to a 22x25-in. Chuse non-releasing corliss engine operating at 200 r.p.m.; one 364-amp. 250- to 275-volt direct-current generator direct connected to and driven by a 14x17-in. Chuse non-releasing corliss engine operating at 235 r.p.m.

In the rear of these two units and in the foreground of Fig. 7 stands a 169.5-amp. 540-kw. 60-cycle, 2,300-volt alternating-current generator direct connected to a 28x32-in. Chuse non-releasing corliss engine operating at 150 r.p.m. This unit is excited by a small generator driven by a belt from a pulley mounted on the end of the main generator shaft and overhanging the outboard or pedestal bearing.

Within a short time a large turbine unit will be installed in the rear of the equipment just described. The foundation for this new machine is now being placed. It will occupy approximately the position of the camera when taking the photo reproduced in Fig. 7. A 10-ton hand-operated traveling crane spans the width of the engine room and traverses the building from end to end.

FIG. 8—MACHINE SHOP AND ITS EQUIPMENT
Speedy repairing is one of the characteristics of a modern plant. Some part of the equipment is always needing repair. If it can be adequately and rapidly repaired at the mine the tonnage is maintained. Unfortunately accounting is not readily pushed so far that against every breakdown is charged not only the labor and material of repair but the loss of efficiency that the idleness of the part being repaired almost inevitably occasions. If that charge could be, and were, made, the realization of the value of the repair shop would be driven home with more force.

The shops at this plant, as may be judged from the accompanying illustrations, are substantially built, well arranged and adequately equipped to perform the general run of work that must be done at an operation of this kind. The wash house is 40x180 ft. in ground dimensions and is fitted to accommodate 1,000 men, about 700 now being employed above and below ground at this operation.

The air-man-and-material shaft is located about 700 ft. from the main shaft. It is served by an 18x36-in. steam hoist fitted with a 5-ft. cylindrical drum and a hoist rope 1¼ in. in diameter. The fan supplying air to the mine is a 16x5-ft. Jeffrey machine, direct-connected to a 20x24-in. Chandler & Taylor engine. It is now operated at approximately 90 r.p.m. and supplies about 175,000 cu.ft. of air per minute.

The real criteria by which any industrial or other plant must be judged are the results accomplished. Thus far Bell & Zoller plant No. 2 has not had an adequate opportunity to show of what it is capable. The plant as a whole is new and not as yet thoroughly "limbered up." The morale of the organization, however, appears to be excellent and all concerned seem to take a wholly justifiable and commendable pride in the speed with which coal can be brought to the surface. As remarked earlier in this article, therefore, when opportunity comes and both equipment and organization are thoroughly "in tune," plant No. 1 may have to do its utmost if it is to continue to be the world's champion coal producer.

ONE OF THE CONGRESSMEN points out that a great part of our country has been settled by immigrants. He fails to make mention, however, of the parts that have been unsettled by them.—*Manila Bulletin.*

Cutting Derailment Costs by Suitable Precautions

One-Inch Is Maximum Permissible Wear for Locomotive Tires—False Flange Compels Wheel to Climb Over Switch Rails and Frogs—Projecting Lips for Bumpers—Protecting the Legs of Steel Sets—Track Rerailers Desirable

By Alphonse F. Brosky*
Pittsburgh, Pa.

Of all the questions put by mine engineers perhaps the most persistent of all is: What is the maximum permissible wear of locomotive tires, and what is the effect of inadequate locomotive clearance on the behavior of a mine locomotive? Cases are known where locomotives have been derailed because their tires had worn down to such an extent that the clearance between the underside of the locomotive and the rails no longer was sufficient.

Where this happens a piece of slate or a hard lump of coal on the roadway may raise the locomotive from the track and cause it to leave the rails. This is more likely to occur where the track rolls, for in that event the front end of the locomotive tilts upward or downward as it travels along the roadway. By better locomotive design the dangers of derailment arising from the faults of the machine itself are being eliminated. In consequence practically all new locomotives are safe in this respect. In the past a few locomotives were designed without enough underclearance to permit the machine to run safely even when the wear on the tires still was within reason.

Knowing this, inquiry was made of mechanical engineers at mines as to the wear on a locomotive tire which might be considered reasonable, economical and safe. The reports received from many of those consulted indicated that they were practically unanimous in the belief that a locomotive never should be allowed to lower more than 1 in. by the wearing of the wheels—that is, the web radius should be reduced no more than that. Practice from mine to mine varies but little in this regard. Tires are permitted to wear ½ in., more or less, before the first turning. Then they are worn ½ in. more, thus lowing the locomotive 1 in. Occasionally it is the practice to allow the tires to wear down still more, in which event they should be turned twice. This practice is neither economical nor safe, however.

Should Wheel Tires Be Turned or Scrapped?

The superintendent of an isolated mine plant should analyze his tire cost, including all items of expense, not omitting the cost of turning. If he does so he may find that it is more economical to scrap a tire after it has become worn down ½ in. than it would be to have it turned for further use. This would be true where the mine is not equipped with a machine shop capable of doing the work. A general superintendent in an outlying district informs me that experience has taught him that it is unprofitable for him to turn down his tires. The cost of removing and sending them away for turning almost equals the cost of a new tire.

On well-kept haulage roads where no obstructions project above the level of the rails, a well-designed locomotive is in little danger of rubbing along the bottom, even though the tires be allowed to wear thin. The locomotive designers with one exception, and then only in exceptional cases, have taken care in all instances to provide clearance that will suffice as long as the tires are not allowed to wear abnormally.

Even though the motors on locomotives are hung

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Note—The headpiece to this article shows the tracks leading from No. 1 and No. 2 drifts of Mine No. 214 of the Consolidation Coal Co., at Roberts, Ky. The rail weighs 56 lb. per yard and is laid on 6x6-in. ties set on 18-in. centers. The diamond crossover, however, is laid on 8x8-in. ties so closely placed that they almost form a floor under the crossing. Between the guard rails and the true rails is placed a 2x2-in. steel piece which gradually rises toward the crossover. The flanges of the wheel ride on this bed of steel, thus elevating the tread of the wheel above the rail. In this manner the wheel, resting on its flange, has continuous support. In passing over such intersections the wheels do not bump in the customary manner. In fact the locomotive rides so easily that the passage over the intersection is hardly noticed by the motorman. Tracks like these are not excelled on the best of railroads.

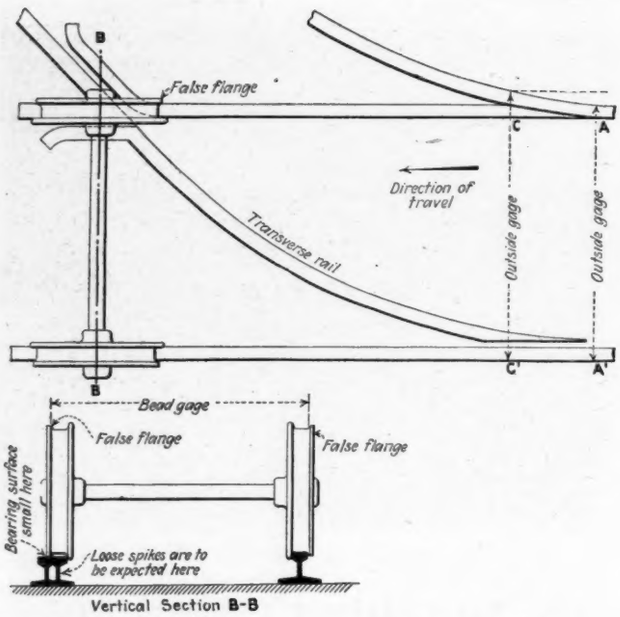


FIG. 1—GROOVED WHEEL CROSSING A SWITCH

With a grooved wheel, the false flange has to climb over the switch rail and the frog. Before it rises it becomes wedged by the recession of the surfaces against which the false flange rubs. This tends to loosen or upset the rail and to bring a thrust on the wheel. If the wheel is loose it comes off; if tight, the pin that holds it may be sheared. If it is on a locomotive and has a loose tire, that tire may be pulled off. When it finally climbs, the wheel so raised is higher than that on the other side, and the thrust is reversed. The climbing is injurious to the rail, and the running of the thin bead on the top of the rail or frog soon wears it down, a most injurious action. All of which explains why grooved wheels are to be avoided as much as possible and why some means of readily turning them in service or out of service at minimum labor continually is being sought.

low and tires wear or are turned until they are thin, reducing the underclearance as much as 1½ in., this should not cause the locomotive to rub on the bottom, provided the roadway is clean. It is not safe to lay too much stress on the cleaning of the roadway, however, for a fall of rock or coal from a car or from the roof may make the roadway, however well kept, far from clean at the point where it occurs. With decreased clearance the chances of the lowest point of the locomotive touching the transverse rail at a switching point are greatly increased.

Locomotive clearance always must be figured from the elevation of the top of the rail and not from its base. The locomotive may pass readily above the ties and yet come to grief at the transverse rail of a turnout.

The clearance between the top of the rail and the frame on low types of Westinghouse-Baldwin mining locomotives is from 4 to 4½ in. With the standard type the clearance is 6 in. However, the distance between the lowest part of the motor and the top of the rail is between 2 and 2½ in. From 1 to 1½ in. is the maximum depth to which the tire should be allowed to wear.

Deeply grooved locomotive tires are likely to cause accidents not on the straight track but in transferring at switch points and to a lesser extent in crossing over points of narrow-angled or large-numbered frogs and also in passing crossings. Not only do grooved tires cause derailments but they also damage the track accessories, and these in turn damage the locomotive, and thus the injury is intensified. The wheels of the rolling stock, even if they have no false flanges, will wear both themselves and the track.

Each time a wheel passes over from a wing to the point of a frog, or vice versa, a gap must be crossed. The passing of a wheel either of a mine car or a locomotive once over such a gap will do little damage, but during the life of rolling stock the wheels pass many times over these gaps. Although the mine cars and locomotives travel on straight track most of the time, the ill effects of turnouts and crossing on wheels are greater than the ordinary wear on a straight track. In Fig. 1 a mechanical analysis is made of the action of grooved tires at frog and switch points. A little study here will make clear the mechanics involved.

Referring to the plan, let us assume that a pair of locomotive wheels with deeply grooved tires moves toward the frog. As the wheels advance from AA' toward CC' the outside gage of the track widens though the wheel gage is constant. At AA' the outside gage of the track probably is equal to that of the distance between the false flanges, but as it widens this ceases to be true.

If there were no false flanges the wheels would travel along without any resistance except that normal to straight track, but as there is a false flange the wheel must rise so that the bead on the tread of the wheel can lift itself onto the top of the receding rail of the side track, and before it does that it becomes wedged and has to force itself clear. The same condition also is apparent when crossing from the straight rail to the frog as at B. Traveling at speed under such conditions one wheel is suddenly lifted, and that action imparts a sudden side thrust to the wheels. The action is similar to that in passing over a stepped track joint. Thus it is that grooved tires rapidly wear away the switch points. Passing in the other direction, that is from the rear of the frog to the point or from the frog toward the switch, the false flange will strike the incoming rails or the inside edge of the frog and produce a heavy thrust to the right.

Cannot Raise Switch Point to Spare Rail

To prevent derailments at such places the switch points might be raised so that they would stand at the height of the groove, but this practice would be impracticable for the grooving is not the same on all the equipment passing over the switch, and where the wheels are not so badly grooved the whole weight would fall on the point of the switch, with injurious results. The better plan is to keep the wheels reasonably free from false flanges. It is obvious also that the raising of the switch points would cause a thud when the wheels struck them, and the effect of such an elevation of the wheel would be to injure the switch point and cause the same side thrust as before.

When a grooved locomotive wheel passes over a frog point it is lifted up so as to permit the bead on the tread to cross the outer wing of the frog. In doing so the contact surface between the wheel and the rail is reduced considerably. If the frog is made of ordinary steel the false flange will rapidly wear a groove across the frog point. At best it is a difficult matter to anchor frogs and maintain their alignment. With grooved locomotive wheels it is still more difficult to prevent the frog being thrust out of line.

Unless locomotive tires are allowed to wear to a point where they have no strength, they will rarely come off at an inopportune moment. It is, it is true, a possible source of accident, and care should be taken to insure tight fits when putting tires on a wheel. Should the tire be shimmed, too much filler should not be added.

as it will put a strain on the tire which may fracture it and cause it to loosen or even come off.

One company reports an interesting accident. A gathering locomotive ran over its electric cable and severed it, and in doing so a small notch was burned in the web of the tire. The wheel rested on the exposed wires only a short time, but it was sufficiently long to weaken the tire at that point, so that not long afterward it opened up.

An instance is reported where a loose tire barely failed to cause a fatal wreck. A main-line locomotive intending to go north crossed a switch leading east. The frog engaged the loose tire and carried it toward the east. The locomotive, however, continued on its way north until it came to a curve going northwest. Not being held to the track, due to the absence of one of its flanges, the motor continued in a northerly direction and ran into the rib. The motorman jumped before the collision occurred, but two timber sets were knocked out and enough rock to fill fifteen cars fell on the roadway.

Loose wheels on mine cars are conceded to be exceedingly dangerous and without doubt cause most of the wrecks in mine haulage. These wheels will slide off at the slightest provocation when crossing a frog. Wheels rarely become loose on mine cars if they are equipped with roller bearings because the retaining pins rarely if ever break and fall out. One company reports that over a period of two years it did not have a single loose wheel.

Where mine cars are equipped with plain-bearing wheels a competent mechanic should grease the cars so that at the same time they may be inspected. Too many companies make the mistake of employing a boy or man who lacks the mechanical ability to do this work satisfactorily. One consulting engineer recommends that the scheme described in *Coal Age*, Aug. 10, 1922, page 197, be used as a means of making the detection of loose wheels absolutely certain. A similar arrangement could be rigged up underground where the lighting is insufficient for a really efficient inspection.

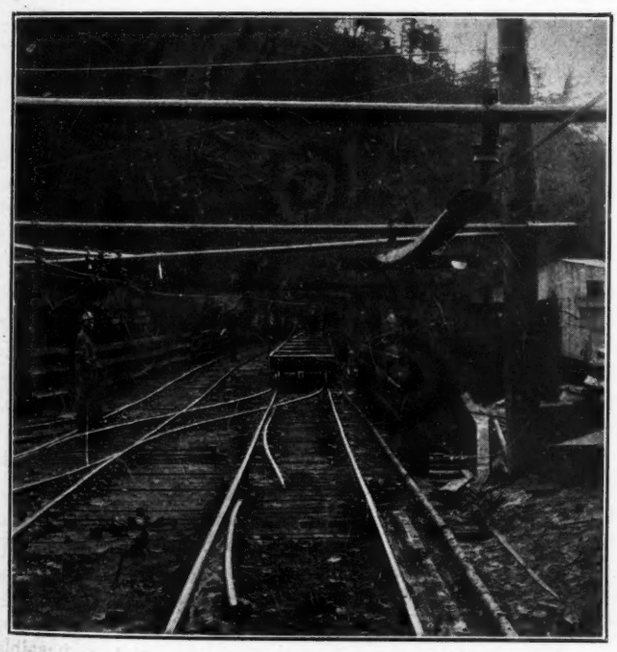


FIG. 2—TWO RERAILERS TO PROTECT PIPE LINE

These rerailers can be seen near the left rail. A plank which rises toward the throat of the rerail raises the wheels so that the treads mount the rail instead of pushing it over. A plank on the far side of the right rail similarly lifts the wheel on that side so that its flange can cross the rail and drop into place. In this way the cars are prevented from breaking the pipe line or from dropping over the side of the bridge.

FIG. 3—FOUR PERMANENT RERAILERS UNDERGROUND

These rerailers replace cars automatically as the trip proceeds on its way. The illustration is from a photograph taken at Mine No. 294 of the Consolidation Coal Co., Jenkins, Ky. The rerailers retrack cars both on coming and going trips. Note the wood inclines which raise the wheels gradually to a height at which their flanges or their treads can move readily over or onto the rail, respectively, and drop into place.

Advances in the design of bumpers both for mine cars and locomotives have done much to eliminate the derailments at curves and to prevent one bumper from climbing over another. Especially is this true of locomotive bumpers. If not provided with any other device the modern bumper is furnished at least with an overhanging lip on its upper edge. This keeps the mine car nearest the locomotive from climbing over the bumper of the latter, an occurrence that is likely to injure the motorman.

The bumper sometimes has a series of horizontal slots or shelves and is made unusually deep so that a locomotive with safety may haul mine cars of varying bumper height. In adding new mine cars to those already being used at his mine, the operator should make sure—if a new design is adopted—that these new cars will function well with the cars with which they will have to be hauled. A change of mine-car proportions usually necessitates a change of bumper design.

In an effort to secure greater safety for the motorman in hauling a trip of cars and the snapper in coupling up, and also to create a bumper which may be used over a period of years with few or no repairs, the Elkhorn Division of the Consolidation Coal Co. at Jenkins, Ky., is co-operating with the Huntington Car & Foundry Co., in the development of a bumper for its main-haulage motors.

The locomotive on the left in Fig. 6 is equipped with two 1,800-lb. cast bumpers which no doubt will stand hard usage. Each bumper is approximately 18 in. deep and has three slots making it adaptable to three types of mine car, each having a different height of bumper. A projecting lip prevents the mine car next to the locomotive from climbing, which action, if permitted, would endanger the life of a motorman whenever the motor is coupled to the trip with the control end to the rear. The face of the bumper unlike that of older types, is curved as it should be to facilitate the negotiation of curved track.

The bumper on the motor standing to the right in the

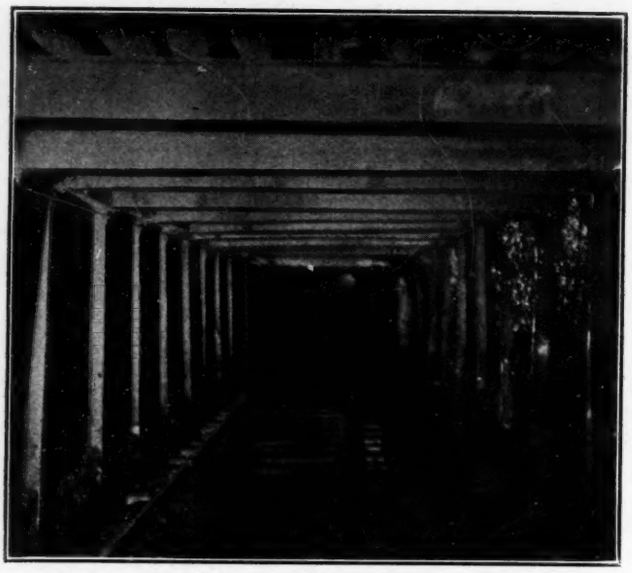


FIG. 4—STEEL SETS WITH FOOT PROTECTION

To protect the steel sets from being knocked out of place by derailed cars or locomotives, bottom separators have been provided. The roof at this point is bad; consequently over the 8-in. steel girders which span the roadway are two courses of locust tie timbers with cross members. The sets are placed at 6-ft. centers and have 4-in. H-section posts. The bottom separators are of 6x6-in. oak. The clearance on the right is 3½ ft. wide. As the illustration shows, the company has a great belief in clean haulageways and ample clearance. Still more protection would have been given the legs if they had been mounted on a concrete wall as high as or higher than the sides of the cars.

same illustration is practically of similar design though its composition is different. Its weight is two-thirds that of the solid bumper as it is built up of wood and iron. Which type ultimately will be adopted as standard depends entirely upon their comparative utility. As with all that is new the bumpers shown must go through stages of evolution before the best possible design is adopted.

Try as one will one cannot wholly prevent derailments. One can only hope to make wrecks less frequent. Consequently, the next consideration should be to limit the damage that might be done should such a derailment occur. Perhaps the most serious secondary danger is that of dislodging the timbers by which the roof is supported. When this occurs the loose rock which these timbers support is almost certain to be brought down.

Saving Posts from Blows of Derailed Cars

Discretion dictates that legs which rest on the bottom of the roadway be placed in niches so that they will not project beyond the surface of the rib. Where the roof load is no greater than may be carried safely by the coal itself, short blocks resting on the coal may be used to support the crosspieces. This will keep the footing above the danger zone which lies between the bottom of the roadway and a point slightly above the top of the mine car.

Steel timber sets find their greatest use at turnouts, and it is just here that a derailment is likely to occur. Anchoring the legs on concrete piers placed in the bottom will not always prevent these posts from being dislodged when hit by a derailed motor. The safest practice is to build a concrete wall approximately the height of the mine car and to rest short legs on this.

When a long trip of cars, either of loads or empties, travels along the roadway, the motorman being on one end and the snapper on the other, the mine car in the middle of the trip may leave the track and ride the ties without either man becoming aware of that fact. Sometimes the motorman can feel by the jerking of his locomotive that a car in the trip is derailed, but this is rare.

He may ascribe the "hard" running to a lack of lubrication or to some other condition and remain content until a pile-up occurs. A derailed car often will continue to run in this manner for long distances, being held from further displacement by the cars on either side of it. Several cars may leave the track before the motorman discovers that something is wrong.

Nowadays permanent rerailers are being introduced at points in the mine where cars are most likely to leave the track unnoticed. These form an integral part of the track itself. Sometimes they are placed on the outside of the track and sometimes on the inside. Occasionally they are placed on both sides. They automatically rerail mine cars and are equally effective in guiding the wheels of a locomotive back to the track, using its own power for that purpose.

When these rerailing devices are used an elevating platform is placed between the wing flanges and the straight track. This usually is of wood and is arranged so as to rise to the rail level at the point where the rerail and the other rail come most closely together. This is known as the "throat." In this way the wheels will be at an elevation that will make rerailing easy and automatic.

The headpiece of this article and Fig. 2 will give an excellent idea of the manner in which these operate. The latter illustration portrays a simple rerailer located on the approach to a tipple bridge. As arranged, it offers protection to the pipe line and bridge railing shown to the right of the track and automatically rerails any car that might get off on that side. A similar arrangement placed on the right-hand side of the track would rerail the cars if off on the other side. Setting a guard rail on the bridge is a precautionary measure that will prevent injury should the rerailer fail. Though it will not lift a car to the track, it will keep it away from the bridge railing for some distance.

A more effective rerailer is seen in Fig. 3. This is located in mine No. 204 of the Consolidation Coal Co., at Jenkins, Ky., on the load haulway off the First East, and therefore is not far from daylight. Its location is logical. Ten-ton locomotives ply this haulageway. Com-

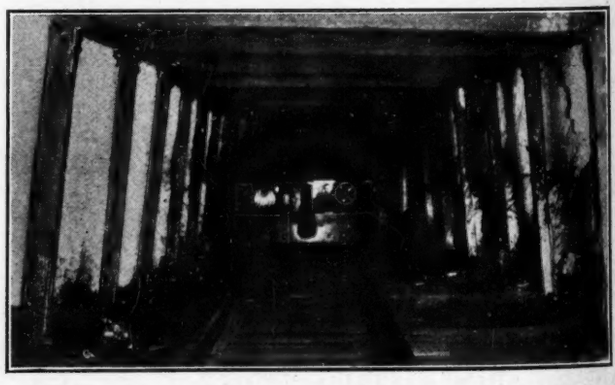


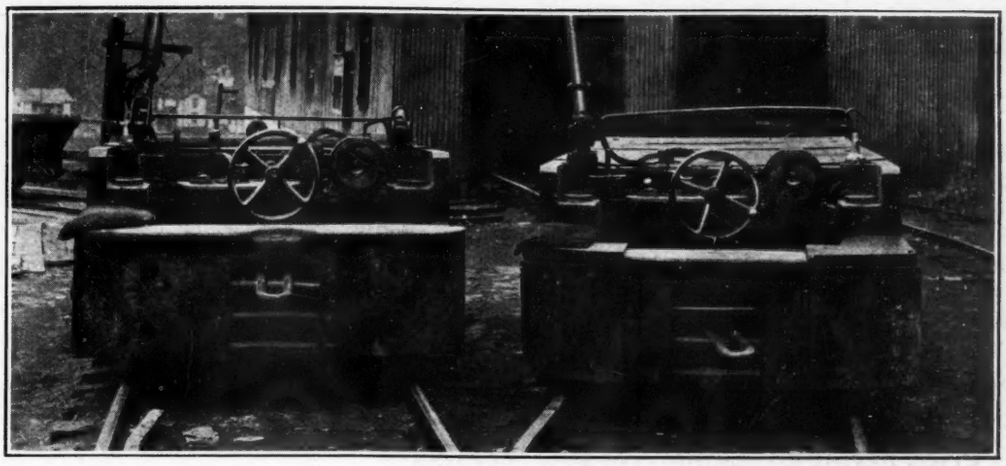
FIG. 5—STEEL SETS IN CONSOLIDATION MINE 204

The switch in this roadway is thrown parallel to the track and not at right angles to it, thereby enabling the snapper to throw his switch without danger of being crushed by the locomotive. He feels assurance when this kind of a switch is provided, and he throws it full over, saving a derailment and injury to the switch rails. With the other kind of switch he may be precipitated in front of the locomotive.

FIG. 6

Two Bumpers

The locomotive on the left has two 1,800-lb. cast bumpers 18 in. deep. It has three slots, making it adaptable to three types of cars, each with a different height of bumper. The purpose is to prevent the car from climbing onto the part of the locomotive reserved for the motorman and the controller. The bumper on the motor to the right is of a similar design but is two-thirds as heavy.



ing from the First East entry a heavy grade favors the loads. Checking and stretching the trip on such a grade is likely to cause the derailment of a car; but the entire trip will be sure to leave the mine on the steel after passing through this rerailer. On several occasions a 10-ton motor has left the track and without apparent difficulty has been put back in place with the aid of this device.

Though derailments usually occur where conditions are such as to favor them they are likely to happen even where they are least expected. Motormen insist now that their motors, regardless of type, shall carry rerailers. Efficient companies are equally as insistent on this score, maintaining that time should be saved that is now wasted in looking for the paraphernalia wherewith to retrack the locomotive which has left the rails.

The use of props, ties or a jack in this work is to be discouraged if possible as that practice is fraught with danger to life and limb. No man is a coward nor is he lacking in devotion to duty when he refuses to hold a tie or prop in position for the rerailing of a locomotive. Unusual conditions surrounding the scene of the derailment may make it impossible for a locomotive to regain the track on its own power. Another locomotive, a block and chain or a Sylat post puller will aid, the last two by holding what ground is gained by the locomotive moving under its own power. Extreme care should be taken by the men to keep out of the direct path of the chain for the latter is sure to act like a whip whenever it breaks.

Some Mines Fix a Certain Maximum Grade

Coal companies do not insist with sufficient determination on the proper installation and maintenance of their track equipment. This is just as important as good material, for complaints against the material in use when investigated usually prove that the fault lies not in faulty fabrication but rather in improper installation and maintenance.

At some mines a maximum grade is adopted and, if the coal dips at a heavier grade, the entry is raised or lowered by taking bottom or bringing down top. Where a mine is advanced correctly the daily mileages of gathering locomotives are fairly uniform. In justice to the loaders working the several mine sections, mine-car distribution should be equitable. To accomplish this end, gathering locomotives having longer hauls should care for fewer working places than those having short hauls. In most mines this practice prevails.

Under uniform conditions no more than two types of locomotives should be used, one for main haulage and the other for gathering. When this is done repairs are more easily made, fewer repair parts have to be kept on hand, and the management is better able to judge by comparison what comprises a fair day's tonnage for each locomotive, remembering always that main-haulage and gathering locomotives must each be compared with other units of the same class.

By having locomotives of a construction that the repair forces understand and by having plenty of repair parts always available, safety and economy in haulage is the better insured. Track should not be laid with rails of too many different weights. The usual three classes—heavy for the main roadways, medium for cross or room entries and light for the rooms—should be strictly followed. Transferring from one size of rail to another is better accomplished by switches than by joints, and if this plan is adopted derailments will be fewer.

Track Standards Should Be Established

If some one method of laying track is adopted the tracklayers will readily adjust themselves to it. Even when they are not required to follow any plan in laying turnouts they unconsciously will attain to some uniformity of construction throughout the mine. But scientific layout nevertheless is advisable and should be required.

The use of parallel-throw switches throughout the mine not only protects the lives and limbs of snappers but also preserves the switch points from damage and eliminates derailments of the locomotive. In setting a normal-throw switch, which is thrown toward the track, the snapper has little time until the locomotive is upon him. Thus hurried he may not close the switch completely. In consequence the motor will damage the switch point and on rare occasions will climb over it. The parallel-throw switch, because it is always in the clear whether opened or closed, imparts a confidence to the snapper that moves him to set it correctly.

Mine-car inspection is one of the most important elements in attaining freedom from haulage accidents. Some superintendents are beginning to sense that fact and at least one is a "stickler" for thorough mine-car inspection. The highest paid employee on the outside of his mine is none other than the man who inspects the mine cars. That employee is not even burdened with the job of lubrication. As the mine cars are equipped with roller bearings and do not need frequent oiling he can concentrate his attention on inspec-

tion. Cars are lubricated every ten weeks, but by someone else.

Brakes are placed on mine cars for a purpose. If we may judge from the indifference which some officials exhibit as to the condition in which they are kept, brakes are merely added through a whim of the manufacturer. How often has it happened that a snapper reached for a brake to check the speed of a mine car only to find that it did not take hold. The result usually is a collision. Only infrequently is there a derailment. But because no cars leave the track is no reason why the brakes should not be carefully watched and cars with poor brakes taken to the repair shop, for the shocks sustained by cars having ineffective braking equipment will inevitably bring them there before long.

Price Fixing by Employers and Workers

TWO unusual cases have recently developed in which the fact was brought out that employers and employees had entered into mutual agreements the effect of which was to maintain or inflate prices. The workers' interest in entering into such agreements, it is fair to assume, is the maintenance or increase of their wages.

In one of these cases a federal grand jury in Cleveland, Ohio, on Jan. 5, handed down indictments, charging violation of the Sherman Anti-Trust Law on the part of sixteen members of the Wage Committee of the National Association of Window Glass Manufacturers and the National Association of Window Glass Workers. Immediately following the indictments the federal judge sitting in Cleveland issued a temporary order restraining the manufacturers and glass workers from carrying cut the terms of what has been called their "wage agreement."

The basis of both the indictments and the temporary injunction is the allegation that the manufacturers and their employees had negotiated an unlawful contract with the apparent purpose of curtailing the output of hand-blown window glass and of raising prices. A part of the proof in the case was an alleged agreement which bound certain companies to close their plants in order to curtail production.

In a somewhat similar case the Federal Trade Commission has been asked to proceed against the Photo Engravers Board of Trade of New York and the New York Photo Engravers Union No. 1. As summarized by the commission, the facts as alleged in this case are that there exists an agreement between the board and the union "to adopt and maintain a schedule of uniform prices below which no members of the board will sell photo-engraving products." A joint commission of the board and the union, the complaint states, sees that the agreement to this effect is carried out.

On its part the union, it is set forth by the commission, requires its members to cease working for any member of the board who fails to maintain the prices agreed upon. In order that such prices may be established, the union itself prepared a chart of prices to be used by all manufacturers of photo-engraving products, and bound its members to work only for members of the board who maintain such prices. The situation is thus presented of workers instructing their employers what prices to charge and forcing all consumers to pay them.

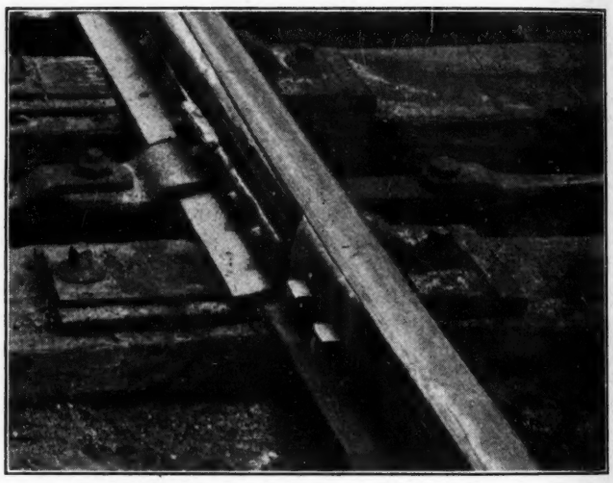
The result of the agreement, according to the complaint made public by the Federal Trade Commission, is "that practically all manufacturers of photo-engraving products in the city of New York have been compelled to join the Photo Engravers Board of Trade, giving the members of that board a monopoly of the business, and enabling them to maintain prices and eliminate competition." In the light of labor's condemnation of employers for alleged practices of this nature it will be interesting to hear counsel for the Engravers' Union defending its action at the hearing the commission is to hold on this complaint.

The Cleveland and New York cases differ in that in the latter the element of unfair competition is introduced, while in the Cleveland case the proof related mainly to attempts to limit production. But the objectives of the two agreements seem to have been essentially the same.

The attack made upon agreements of this character is likely to discourage similar attempts to maintain prices, even if, as in the photo engravers' case, the objective is mainly to enable employers to pay high wages. —*The Index.*

Curved Plate Protects Switch Points

NO PART of tramroad and railroad equipment is more ill-used than the switch point. Constructed so that it tapers to a mere sliver at the end, it is ill-adjusted to bear the excessive wear to which it is exposed. Consequently it has occurred to someone to attach to the rail by bolts a guard plate with a gently rounding edge, placing it two inches from the switch point. Its purpose is to prepare the wheels which pass it, on their way toward the switch, to meet the switch point without any sudden thrust. The wear thus comes on the protector and not on the switch. This guard plate is small and made of manganese steel. It is shaped to conform to the head of the railway rail. The heads of the bolts rest in a channel plate made to conform to the space between the head of the rail and the flange.



GUARD PLATE WHICH REDUCES WORK OF SWITCH

When a wheel has passed such a guard plate as is illustrated above, it is rightly directed and rightly placed to take the switch point, which has nothing to do whatsoever except to hold what has been gained. The weight on the wheel is carried, at least in the main, by the straight rail. Hence the switch point becomes largely functionless and lasts accordingly.

This device has been extensively used on railroads and has given excellent service, lengthening the life of the switch points, especially in unfavorable locations. As it is curved in both directions it does not interfere with traffic on the straight track. This device is known as the Mack Switch Point Protector and is manufactured by J. R. Fleming & Son Co., Scranton, Pa.

Submersible Pumproom Will Not Flood Till Water Rises One Hundred and Twenty Feet Above Pumps

No Water Admitted to Pumproom Except What Passes Through Pipes—Dams, Proof Against 300-Ft. Pressure, Isolate Pump Chamber — Water Is Stored in Coal Seam 10 Feet Below

By D. C. Ashmead*
Kingston, Pa.

OPERATORS in the anthracite region not only have to handle the water passing through the measures but are forced frequently to cope with great inrushes of surface water, which in many cases drown out the workings and preclude operation for days at a time. Usually only parts of the mines are thus affected, but it not infrequently happens that almost the entire workings are inundated.

These inrushes of water come from various sources. Thus a cloudburst may cause runs and creeks to flood over their banks and flow down shafts or slopes into the mine workings. Sometimes such flood waters break into the mine through cave holes and cracks. Then again prolonged rains cause water to enter the mines through caves and surface fissures. Workings at other times break through to old operations which are filled with water.

When these floods occur pumping is not the only cost. In the long run the loss of time due to the flooding of the workings probably will be a more expensive item, though the fact that it is not charged to drainage may cause that fact to be overlooked. When mines are closed down the overhead cost must be met without any tonnage being obtained over which to spread it, and at an anthracite mine the overhead charges are necessarily heavy.

Flooding Causes Delay in Operation

The coal companies, realizing that the flooding of mines is a costly misfortune, are taking every precaution to prevent such flooding and to provide for the speedy dewatering of the workings should a flood occur. The best method, of course, is to try to prevent such inundations, but in many cases this is impossible. The next best course is to provide a means for dewatering that will interfere with operation as little as possible.

*Assistant Editor, *Coal Age*.

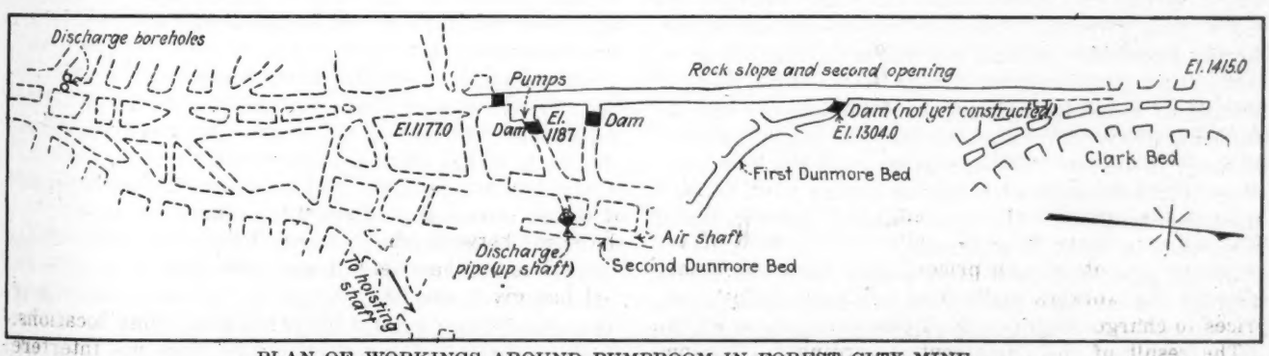
The Pennsylvania Coal Co. has provided "concealed," or submersible, pumprooms, that can be operated regardless of the condition of the workings. These pump chambers are so constructed that when the water level in the mines rises, they will not be flooded. Even when water spreads through workings around and above them the pumps still are dry and can be reached and tended in perfect safety.

At Forest City a colliery named after that town is operated by the Hillside Coal & Iron Co., which in turn is affiliated with the Pennsylvania Coal Co. In the past this mine has been visited by floods, and sad experience has convinced the coal company that the pumps must be protected so that in case of a flood they can be reached and operated as usual.

Slope, a Water-Tight Passage to Pumproom

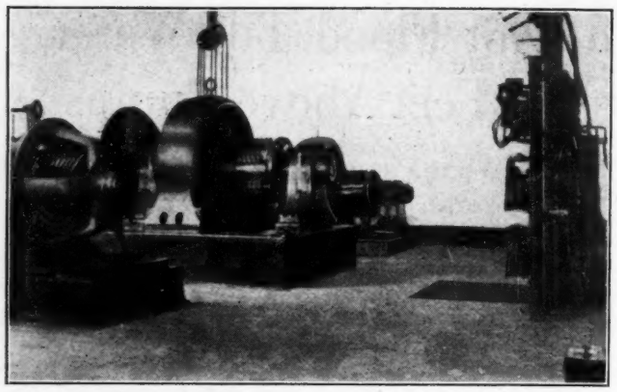
From the Clark Bed at an elevation of 1,415 ft. a rock slope extends down to the Second Dunmore bed at an elevation of 1,187 ft., or 228 ft. below. At the foot of this slope is placed the pumproom. The only way in which water could enter this rock slope from the Second Dunmore bed would be by rising 117 ft. It would then reach the First Dunmore bed at an elevation of 1,304 ft. This bed has only one opening into the rock tunnel. This can be sealed by a dam; thus water cannot get into the rock slope till it has risen in the mine 227 ft. and utilized a large excavated area in the first Dunmore Bed for storage.

At the foot of the rock slope are two openings into the Second Dunmore bed. These have been sealed by watertight dams that will withstand a head of 300 ft. The bottom of the Third Dunmore bed is 10 ft. below that of the Second Dunmore, and a seal is placed between the rock slope and this seam of coal. The old workings in the Third Dunmore bed serve as a sump for the pumps. The suction pipes pass through the dam



PLAN OF WORKINGS AROUND PUMPROOM IN FOREST CITY MINE

Beneath the pumproom floor is the seam known as the Third or Lower Dunmore and roadways which have been driven in it afford sumpage for 17,600,000 gallons. As soon as the water rises above the level of the pumproom floor, without, however, entering that chamber, it floods the Second or Middle Dunmore bed, and before it is 3 ft. above the floor it has attained a storage capacity of 34,500,000 gallons. This only partly exhibits the water storage available at this installation, for the water will not begin to flood the pumproom (except it be through the measures) till it has risen beyond the first Dunmore bed to the Clark seam, 228 ft. above the pumproom floor. The bottom of the hoisting shaft is at an elevation of 1,185 ft.



INTERIOR OF SUBMERSIBLE PUMP ROOM
In front are two 6-stage centrifugal pumps of 2,000-gallons-per-minute capacity and in the rear a centrifugal pump capable of lifting 1,000-gallons-per-minute.

into the pumproom, and the discharge pipes on their way to the surface pass out through the dam to boreholes and to the airshaft.

In the pumproom are two six-stage centrifugal pumps that will each lift 2,000 gallons per minute against a 300-ft. head. They are each driven by a 250-hp. motor and have a 12-in. suction and a 12-in. discharge. There also is another centrifugal pump having a capacity of about 1,000 gallons per minute. This is driven by a 100-hp. motor. A traveling crane with a 5-ton chain block handles the pump parts when repairs are necessary. None of the piping is above the floor of the pumproom.

This submersible chamber theoretically would be free from danger of flooding even when the water rises 228 ft. above its floor, but practically it might not be possible to rely on so great an immunity. But even figuring on 120 ft. the mine would have to be almost entirely flooded before the pumproom would be lost, for the Clark bed, that would be still untouched by the rising waters, is already worked out. In ordinary times the smaller pump can handle the water the mine makes, but in the spring, when the water is high, one or both of the larger pumps are used.

Improved Business Conditions of December Sustained During January

FIGURES which recently became available, according to the Survey of Current Business, prepared by the U. S. Bureau of Census and printed in *Commerce Reports*, tend to confirm previous reports of almost uniformly favorable business conditions during December, last. This month, which always shows some let-up in industrial movements, was characterized by well-sustained activity, with increases over the preceding month in many instances. The improvement in the transportation situation enabled heavier shipments to be made in many commodities. This improvement was particularly noticeable in building materials.

Retail sales were of record proportions, and current reports indicate that sales were well maintained during January. Prices remained relatively stable, with further increases in agricultural products, thus bringing these more nearly into line with other commodities.

The outlook for the immediate future, so far as domestic trade and industry is concerned, is particularly bright. The disturbed foreign situation has so far appeared to have but little effect upon such delicate indicators of industrial and commercial wealth as the stock and bond market.

Consumption of cotton by textile mills in December totaled 527,945 bales, or about 50,000 bales less than the high record made in November. Exports of cotton also declined, with a total of 607,853 bales in December, compared with 858,337 bales in the preceding month. Stocks of cotton increased slightly at the mills but declined at warehouses. The total in both positions at the end of December amounted to 5,996,000 bales, compared with 5,919,000 bales a month before, 6,945,000 bales a year ago, and 6,875,000 bales at the end of 1920. The prices of both cotton and cotton goods increased during December. Middling upland cotton at New York averaged 25.7c. in December, the highest since September, 1920.

Receipts of wool in Boston were particularly heavy, due to marked increase in the amount of foreign wool. The prices of wool and woolen goods showed little change from the month before.

Production of pig iron and steel ingots was well maintained during December. The output of pig iron by merchant furnaces increased somewhat in December, while sales and unfilled orders showed a large increase over November. Prices of all iron and steel products tended somewhat lower during December.

Production and shipments of steel sheets declined slightly in December, but sales and unfilled orders showed marked increases.

Automobile production showed only a slight seasonal decline in December.

The prices of most non-ferrous metals increased. Copper production showed another increase, reaching 103,845,000 lb. in December, the largest for any month since 1920.

Contracts awarded for building in the 27 Northeastern states during December totaled 38,603,000 sq.ft. of floor space, valued at $215,213,000, making this month the highest December on record. A year ago the corresponding figures showed 35,272,000 sq.ft. of floor space and a value of $198,518,000, while in December, 1920, only 14,004,000 sq.ft. was contracted for, with a total value of only $100,145,000. Residential buildings in December, 1922, accounted for 24,950,000 sq.ft. of floor space and $120,139,000 in value. Educational building was the only group showing an increase over November.

Some seasonal declines were shown in the production of lumber during December, although in every case the movement was far in excess of a year ago. Shipments were well maintained and in many species were larger than for the preceding month.

The production of face brick increased over November. Stocks and unfilled orders also were larger. Shipments and new orders for enamel sanitary ware were distinctly larger than in the preceding month.

On the whole, construction costs declined slightly after an uninterrupted rise for many months.

The Department of Labor wholesale price index showed no change in December, remaining at 156, the same as in November. Slight increases in farm products, food, cloth and clothing, chemicals, and house furnishing goods were offset by declines in fuels and metals. Dun's index number also showed no change, while Bradstreet's declined one point. The retail food index increased again, reaching 147, the highest for any month of 1922.

Problems of Operating Men

Edited by James T. Beard

Width of Rooms Not a Tonnage Factor in Mining

Remarkable Record of Two Miners Starts Discussion—Do Wide Places Increase Daily Output Per Man?—Citations from Different Workings

SOME time ago I recall reading with much interest a short article by L. F. Klingensmith, of the Potter C. & C. Co., operating at some point in Pennsylvania (Vol. 22, p. 676). The article was entitled, "Driving Wide Rooms," and its writer was desirous of ascertaining what effect the driving of wide places had on the daily output of coal, per man.

The article did not seem to attract the attention that it should have received from the readers of *Coal Age*. In a later issue, Dec. 28, p. 1041, I. C. Parfitt lays much stress on certain physical conditions existing in the seam, claiming that these have a greater effect on the output, per man, than the driving of wide places.

Remarkable Record of Two Sturdy Miners

This discussion was suggested by Mr. Klingensmith, after reading the account in *Coal Age* (Vol. 22, p. 216), where two miners, working for the Standard Island Creek Coal Co., at Cora and Taplin, W. Va., respectively, loaded what was practically a gondola each day, for thirteen consecutive working days, one man loading 469 cars, holding 656½ tons and the other 459 cars, holding 596¾ tons in the same period.

There is no getting away from the fact that this is certainly a remarkable record, made by two sturdy individuals whom it could hardly be hoped would represent the average of the coal miners working in our mines today. If it were possible for any mine official, by making a visit to these plants and studying their conditions and plan of operation, to encourage his own miners to even approach this record, the time would be well spent.

Claim Not Supported by Facts Stated

It appears that one of these miners worked in a place that was 36-ft. wide, while the other was driving two places, each 18 ft. wide, both of the men working in 4-ft. coal under practically the same conditions. The latter instance, however, does not appear to lend support to the suggestion that driving wide places is a material factor in increasing the daily tonnage per man.

With Mr. Parfitt, I am inclined to think that, aside from their physical strength, the records of these two men were influenced more by the conditions under which they worked. Loading 469 cars in thirteen days shows a daily car supply of $469 \div 13 = 36$ cars, which certainly is going some for a gathering motor, or any other system of gathering haul, assuming that the motorman or driver was serving several other places in his section.

It may be, however, that every advantage was afforded these two men by giving them all the cars they could load. In my opinion, the question of car supply is one of the most important factors affecting a man's daily tonnage, under otherwise normal conditions.

Width of Rooms Should Seldom Exceed 25 Feet

Looking backward in my own experience, and comparing results under some of the large producers where it has been my fortune to work, I recall no instances where the rooms were double-tracked. If my memory serves me rightly the conditions varied from rooms 12-ft. in width, driven on 100-ft. centers, with 88-ft. pillars between them, in some mines, to 22-ft. rooms, driven on 50-ft. centers, with 28-ft. pillars between them, in other places.

Besides these exceptionally large producers of coal, I could name instances of almost every imaginable system of working and ranging from places just wide enough to get a mine car in, to others where the longwall face was 100 yd. in length.

Allow me to say that, in all my experience, I have never seen a largely producing coal mine where the results depended on driving wide rooms. As a rule, when the width of rooms exceed 25-ft., it is because of a specially favorable mining condition with respect to the roof and floor, and the height and quality of the coal. Under ordinary conditions, I may say further, that the driving of rooms of a greater width will generally mean the taking of a gambler's chance.

Pikeville, Ky. GEORGE EDWARDS.

Waste in Mining

Growing need of measures being taken to conserve coal supplies—Waste of coal compared with waste of timber—Many foremen to blame for wasteful practices.

TIMELY attention has been drawn to the unwarranted waste of coal in the methods of its extraction, in the letter of C. W. Atkins, *Coal Age*, Dec. 14, p. 959. I am very much in sympathy with all that he has said regarding inefficiency in the mining of coal.

Indeed, the reading of his letter has taken me back to experiences that are all too common in coal-mining practice. Owing to their important bearing on economic conditions, these should have been investigated long ago and the proper remedies applied. Mr. Atkins has spoken my mind wholly in emphasizing the need of conserving this portion of Nature's resources.

By way of comparison, our friend has spoken of the steps taken by the government, only a few years ago, to stop the slaughter of the buffalo, which if continued would soon have meant the extinction of that valuable animal. In a similar manner, I would refer to the steps already taken by the government to conserve all timber supplies, which have been growing more and more scarce, year by year.

Observation shows that what is true of timber as a natural resource, or of the buffalo, is likewise true of our supplies of coal, which are being rapidly exhausted and will take ages to replace.

There are numerous ways in which coal is being lost where it could be saved if more efficient means of extraction were employed and more restricted measures imposed on mine foremen who are so frequently prone to sacrifice large amounts of coal in their endeavors to make records for low cost of production.

In a few instances, such has been the desire to increase the amount of machine-mined coal, in comparison with that mined by the pick, that the foreman would leave the pick stumps and take out only such coal as could be mined with a machine.

One readily recalls that, but a few years ago, the practice of paying for lump coal only, caused the loss of thousands of tons of fine coal and dust, which was thrown into the gob because the miners would load only coal that would pass over the screens. The result was that the mine-run basis of payment was shortly adopted and much of that loss eliminated.

In the operation of small mines, it too often happens that the miners who dig the coal are permitted to go their own way. There is a lack of intelligent supervision and planning of the mine. While, to many, it may seem childish to ask for government restrictions in remedying these matters, to the thoughtful man it appears to be the only way open to avoid the evil.

Mayport, Pa. JAMES THOMPSON.

Inquiries Of General Interest

Port of Entry for Air and Gas in Mine Safety Lamps

In Practical Tests, Air Appears to Enter at Top of Lamp—Effect Is the Result of Rapid Diffusion of Gas About Lamp When Mixture Is Disturbed

THERE has recently arisen, among mining men in this locality, a question regarding the entry of air into a safety lamp, under all conditions of testing for gas in mines. In hopes of receiving a satisfactory solution of the problem and one that will settle our differences of opinion, I am taking the liberty of presenting the proposition to *Coal Age*, for the consideration of the editor and its readers.

Inasmuch as the Wolf and Koehler are the two types of safety lamps used almost exclusively in this district, I ask that the consideration of the question will be confined to these lamps. Without disclaiming the normal ascensional ventilation within a safety lamp, by which air enters the lamp at a point below the flame and passes out through the upper portion of the chimney, our bone of contention is whether, under certain conditions of testing for gas in mines, it is not possible for gas to enter the top of the lamp and give evidence of its presence by the usual flame cap surmounting the lamp flame.

By way of explanation, permit me to say that it has been my lot to have had several years' experience in the gaseous mines of Franklin County, Illinois, and I have handled gas under every known condition. In reference to the question in hand, it is my contention that gas will enter a safety lamp from the top or from the bottom, depending on the conditions under which the test is made.

For example, when using a smooth bonneted Wolf lamp, I have found gas in a small opening in the roof and under circumstances that convinced me the gas entered at the top of the gauze chimney and passed downward to the flame, which was on a level with the bottom of the cavity where an open light was burning at the time.

Now, it is the contention of some that, in the use of either of the two types of lamps mentioned, gas only enters through the lower portion of the gauze or at the small ports of entry below the flame. In reply to this, I ask, "If such be the case, how is it possible to detect a thin layer of gas next to the roof, without tilting the lamp sideways so as to bring the lower ports of entry in contact with the gas?" In my estimation, that must either be done or some device must be used to bring the gas down to the level of the lower ports of entry of the lamp.

On other occasions, I have found small gas feeders coming from the floor when the gas would readily manifest itself in the lamp, by giving a gas cap on the flame of the lamp as the latter sat on the floor. At the same time, when the lamp was raised 2 ft. above the floor, there was no indication of gas, the gas cap then disappearing from within the lamp. This convinced me that, in this case, the gas entered the lamp through the lower ports below the flame.

As a further test, in support of my theory that the gas may enter the top of the lamp when the test is made under conditions that would favor such entry, I used a Koehler safety lamp having a corrugated bonnet. Entering a place where gas was to be found at the roof and holding the lamp upright, I raised it to a point where the top of the bonnet was but a few inches below the roof.

A test was now made with the Burrell gas detector, by holding the end of the tube on a level with the top of the lamp bonnet on the left. The test showed the presence of 1.7 per cent of gas and a faint gas cap was clearly discernible within the lamp. At the same time, a second test taken 10 in. below the first showed no gas present in the air. Also, lowering the lamp to 10 in. below its first position, gave no indications of the presence of the gas, the gas cap then disappearing from the lamp flame.

Trusting that this communication will be taken in the spirit in which it is offered, which is to lead to a better understanding of the conditions surrounding the testing for gas by safety lamps, I would like to ask for the opinions of *Coal Age* and its experienced readers regarding this question. FRANCIS DEVLIN.

———, Ill.

We shall be glad to have the expression of opinion of firebosses and others who have had long experience with safety lamps. Our own experience, in testing for gas in mines, is that the best results are obtained where the circulation within the lamp is wholly ascensional, the gas-charged air entering at the lower ports of entry below the flame and, passing upward through the combustion chamber, escaping through the gauze chimney of the lamp.

In explanation of the test described by this correspondent, we would suggest that it was the result of the rapid diffusion of the gas into the air, a few inches from where it escaped from the strata. By reason of this rapid diffusion, the percentage of gas was too small to give any indication, either on the lamp flame or by the use of the Burrell gas detector.

In testing for a thin layer of gas, at the roof in a mine, the common practice of the most experienced firebosses is, while holding the safety lamp in an erect position, to disturb the layer of gas by blowing slightly against the roof, thus causing it to descend to the flame of the lamp. We have every confidence in the ascensional circulation of air within a safety lamp affording the most reliable means of testing for gas.

Examination Questions Answered

Miscellaneous Examination Questions

(Answered by Request)

QUESTION—*(a) Compute the lifting power of an 18x36-in. engine, steam gage pressure 110 lb. per sq.in., the diameter of the winding drum being 6 ft. (b) If this engine is geared, by a 12-in. spur on the crankshaft, to a 6-ft. gearwheel on the drumshaft, what would be the lifting power at the circumference of a 6-ft. drum?*

ANSWER—(a) The sectional area of an 18-in. cylinder is $0.7854 \times 18^2 = 254.47$ sq.in. In estimating the lifting power of the engine, the total pressure on the piston is $110 \times 254.47 =$ say 28,000 lb., or 14 tons. Applying this total pressure at right angles to an 18-in. crank, gives for the turning moment at the center of the crankshaft $14 \times 18 = 252$ in.-tons. The lifting power at the circumference of a 6-ft. (72-in.) drum is, therefore, $252 \div 36 = 7$ tons.

(b) The diameter of the gearwheel on the drum being 6 ft. and that of the spur on the crankshaft 1 ft., this engine is geared 6:1, and the lifting power, at the circumference of the drum, in this case, is $6 \times 7 = 42$ tons.

QUESTION—*How many pounds of water is a good average to evaporate from 5 lb. of coal?*

ANSWER—Assuming a coal having a calorific value of, say 14,000 B.t.u. per lb. and evaporating water from and at 212 deg. F., corresponding to 970.4 units of evaporation, the theoretical weight of water evaporated by 5 lb. of coal is $(5 \times 14{,}000) \div 970.4 =$ say 72 lb. Much will depend on the type of boiler, heating value of fuel and manner of firing. Boiler practice gives efficiencies varying from 3 to 7 per cent. A fair average evaporation in coal mining practice may be taken as, say $0.05 \times 72 = 3.6$ lb. of water.

QUESTION—*On what is a safety valve's area based?*

ANSWER—This is hardly an intelligent question. The area of a safety valve will naturally be less, the higher the steam pressure desired. The area is estimated on the steam pressure required and the weight hung on the lever, multiplied by its distance from the fulcrum, and that product divided by the distance of the valve-stem from the fulcrum. Thus, if the diameter of the safety valve is 2 in., its sectional area is $0.7854 \times 2^2 = 3.14$ sq.in. Then, for a boiler pressure of 150 lb. per sq.in., the upward pressure on the valve is $150 \times 3.14 = 471$ lb. Assuming a weight of 50 lb. and a distance of 4 in. from the valve-stem to the fulcrum, the distance of the weight from the fulcrum, in order to blow off at a pressure of 100 lb. per sq.in., is $(471 \times 4) \div 50 = 37.68$ in.

QUESTION—*How would you fire a boiler to obtain the greatest number of heat units from coal fuel?*

ANSWER—In practice the method known as "coking the coal" gives the most uniform heat in the furnace, and is less wasteful of the B.t.u. in the coal. In this method of firing, the fresh coal is spread evenly over the fire, after first remaining a brief time in the fore portion of the firebed, where it is piled and becomes heated before being spread over the hot fire. By this method the alternate cooling and overheating of the boiler plates is prevented. It is important, in firing a boiler, to adjust the draft so that the weight of air passing through the fire shall be only sufficient to burn the coal. Where more air is admitted to the firebed the effect is to chill the fire and much heat is carried into the furnace flue.

QUESTION—*Name and describe the nonexplosive gases met with in coal mines, giving their symbols, properties, atomic weights and specific gravities.*

ANSWER—The common mine gases that are nonexplosive are the carbon dioxide resulting from the complete combustion of carbonaceous matter, in every form, constantly taking place in the mine, due to the breathing of men and animals, burning of lamps and powder, decaying of timber and evaporation of acid waters. The other nonexplosive mine gas is the nitrogen of the air, resulting from the depletion of oxygen, due to various forms of combustion and absorption by the coal. These gases are both colorless and odorless. Carbon dioxide has a slight acid taste. They are both extinctive gases, contain no free oxygen and will not support life. Though not poisonous, carbon dioxide has a toxic effect on the human system. It suffocates when breathed, by excluding oxygen from the lungs. The atomic weight of carbon dioxide is half its molecular weight, or $\frac{1}{2}(12 + 2 \times 16) = 22$; and that of nitrogen 14. The specific gravity of carbon dioxide is 1.529 and that of nitrogen 0.971.

QUESTION—*In an airway 5 x 11 ft., there is passing a volume of 23,925 ft. of air per minute; what is the velocity of the air current?*

ANSWER—The sectional area of this airway is $5 \times 11 = 55$ sq.ft., the velocity of the air current is, therefore $23{,}925 \div 55 = 435$ ft. per min.

QUESTION—*If there are 76 men working in the mine and the fan is producing 15,000 cu.ft. of air per minute, the sectional area of the airway being 64 ft., how many air splits will be necessary?*

ANSWER—The West Virginia Mining Law (Sec. 17) provides that not more than sixty persons shall be permitted to work in the same air current, except by special permission of the district mine inspector, should he consider it safe to employ a larger number, not exceeding eighty men, in a single split. To comply with this law two splits of air will be required in this mine, unless, in the judgment of the mine inspector, it is safe to work the 76 men in a single split.

W. Va. University Mining Course Not "Brief" but School of Mines Is Needed

WEST VIRGINIA may not now have a school of mines, but the state and the coal industry are proud of the coal-mine engineering course offered by the College of Engineering of West Virginia University.

A news story in *Coal Age* of Jan. 11, 1923 (page 68), with reference to an address by Governor E. F. Morgan and to a letter from R. M. Lambie, Chief of the State Department of Mines, advocating that West Virginia have a school of mines, said that "though West Virginia is the second largest coal producer in the United States, it has no school of mines and only one institution offering a course in mining and that only a brief one."

A score of friends of the mining course at West Virginia University have written *Coal Age*, pointing out that though they do want a school of mines, because the mining industry in their state is of sufficient importance to warrant such a separate college, no one should conclude that the work of the State University is lacking in serving its mining students or that the course is in fact "only a brief one." A catalog of the University furnished by Prof. A. C. Callen, who heads the mining course, shows that the mining students are given two years of general engineering in common with those studying other branches of engineering, as electrical and mechanical. The mining course as such is two years, being the third and fourth of the whole course.

The point made by the West Virginians is that they have a good college of mines in conjunction with their university, but that they believe the importance of the mining industry in their state warrants a separate and larger school of mines.

West Virginia University has had for 16 years the four-year course in mining engineering described above; the university also gives a six-weeks summer course. There also are evening schools conducted under the direction of the university, which have an average attendance of about 800 men. In addition, the New River State School at Montgomery has a two-year course in mining engineering.

At the same time West Virginia has the distinction of being one of two states (the other being Indiana) out of twenty-four states with an annual mineral production valued at more than $40,000,000 without a "school of mines" or a separate mining building. New Jersey and Alaska are without colleges offering mining courses.

The establishment of a school of mines was recommended by R. M. Lambie, chief of the Department of Mines, in a letter he sent to coal operators in West Virginia. In an address delivered before the Kanawha Coal Operators' Association at Charleston, Dec. 2, 1922, Governor Morgan, after saying that West Virginia stands second among the states in production of coal mines—exceeded only by Pennsylvania—says that "no state with an annual production in excess of $100,000,000 is without a college giving courses in mining engineering, and these states all have 'schools of mines' or separate mining buildings, with the exception of West Virginia, which has a mineral production of about $400,000,000. West Virginia should no longer lag in the performance of the duty it owes to the thousands engaged in this great industry in making provisions for the proper training and development of persons desiring to enter this field of endeavor, so that the highest efficiency may be attained."

Chief Lambie writes to *Coal Age* that if the effort to get a school of mines is successful nothing would give him greater pleasure than to see the present personnel of the mining engineering department of the University of West Virginia transferred to the new school, as they are efficient and enthusiastic in their work and cooperate in every way with the mining department.

F. H. Neely, of the Avella Coal Co., at Penowd, Pa., refers to the course given at the university for the past sixteen years and adds: "In addition, West Virginia has nine men engaged in mining extension work, and was one of the first schools in the United States to give a four-year course in mining engineering devoted exclusively to the mining of bituminous coal."

Strong commendation of the work of Professor Callen is contained in letters from Herbert F. Harker, of the Elkins Fuel Co., Morgantown, W. Va., and R. E. Salvati, assistant superintendent, Island Creek Coal Co., Holden, W. Va.

Legal Status of Open-Shop Agreements

INSTRUCTIONS have been issued by the Department of Justice to the United States Attorney at San Francisco to investigate complaints that the Builders Exchange of that city has entered into an agreement not to sell material to contractors who employ only union labor. In this connection the Department of Justice has issued a statement to the effect that the Attorney General had already in a previous instance made the department's position clear that a conspiracy "that has for its purpose the destruction of organized labor is unlawful, no less than is a conspiracy directed against unorganized or open shop labor."

The action taken by the department as to the San Francisco situation is, it appears, based on a ruling made by the Attorney General on July 18, in which he stated that an agreement of the kind said to exist in San Francisco is a violation of the law whether committed by or directed against organized labor. The July ruling was substantially as follows:

That a conspiracy on the part of material dealers not to sell material to a contractor who is not operating under the American plan (open shop) is unlawful.

That an agreement to refuse goods to a contractor who employs only union men is unlawful.

That an agreement to refuse to sell to contractors who are employing more than 50 per cent of union men is unlawful.

That an agreement having for its purpose the refusal to sell to contractors whose employees are union men, and who refuse to discharge a portion of the help and engage in lieu thereof non-union men is unlawful.

While the department's attitude in this matter has not, of course, the status of a legal decision, it clearly indicates the kind of action that the Attorney General is likely to take when his attention is formally directed to agreements or contracts of this character.—*The Index.*

IN THE ARTICLE on page 3 of *Coal Age* of Jan. 4 it is stated that the Nineveh Coal Co. plant was developed to serve a 40,000-kw. plant of the Penn Public Service Corporation. The coal supply of that power plant is, and always has been, received from the No. 5 plant of the Penelec Coal Corporation, located within 500 ft. of the power plant. The error in question arose from a misapprehension of a statement in the original manuscript.

Book Reviews

A Book on British Anthracite and Its Uses

A LEONARD SUMMERS, who is the author of a book entitled "All About Anthracite," has ventured to write, despite the all-inclusive title of his previous work, another book labeled "Anthracite and the Anthracite Industry" on behalf of Isaac Pitman & Sons, Ltd., of London and 2 West 45th St., New York City. It may be said here and now that this latter book has too large a title, for its remarks on American anthracite are too inconsiderable to be of any value. They cover about five pages and are taken for the most part from *Coal Age* and from papers by D. C. Ashmead and J. Griffen as read before the American Institute of Mining and Metallurgical Engineers. It describes the Chance system as being "the American method of separating coal from slate." Though it is making headway it has hardly established itself so widely; still it may be considered "American" as being different from that in use in any other country.

To the American reader, however, the book may not be less favorably received because it is so exclusively British, for much curiosity has been aroused as to this new rival to American anthracite in the harbors of the East. A few of Mr. Summers' remarks will be of interest. The South Wales coal field, he says, covers "five counties and has an estimated area of 1,000 square miles of which about 15 per cent is under the sea [as against 480 square miles which is the area of the anthracite coal fields in Pennsylvania]. The western portion of the field yields hard anthracite and semi-anthracite, while the varieties of the eastern area are dry steam coal, smokeless steam coal and bituminous coal.

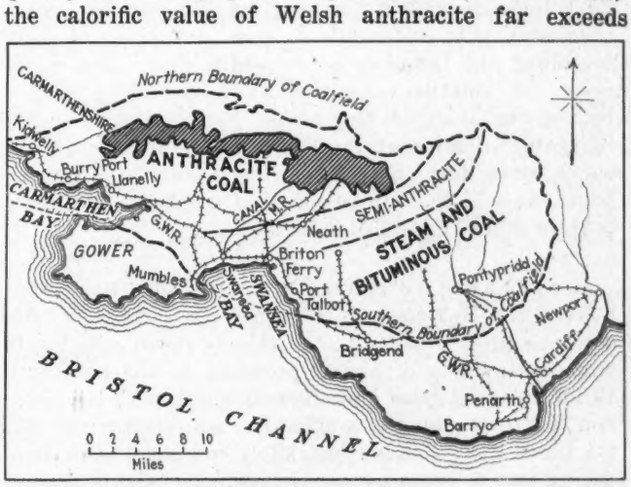
"Swansea is practically the center of the anthracite field, but considerable and valuable seams extend for several miles below the sea across Swansea Bay and in Pembrokeshire. Although the output of Welsh anthracite is only one-twentieth of that in America [Pennsylvania] it has the distinction of being of the finest quality in the world and in world-wide demand. Indeed, in normal times, prior to the Great War, of its modest output of 5,000,000 tons about 67 per cent was exported mostly to countries producing their own anthracite, only about 33 per cent being required for home use. However, Britain has grown wiser of late, and the inland demand has grown enormously.

"Forty companies are working the South Wales anthracite field, which contains seventy collieries, the most important seams being the Big, Stanllyd, Brynlloi, Peacock, Gras, Green, Charcoal, Triquart, Pumpquart and Lower Pumpquart. The largest colliery is New Cross Hands, owned, together with several other mines, by the Cleeves Western Valleys Anthracite Collieries, Ltd., of Swansea. Over 200,000 men are engaged in the whole [South Wales] field, but only 14,000 of them are in anthracite collieries. The total estimated unmined coal is 28,000,000,000 tons, of which 22.27 per cent is anthracite, 30.42 is bituminous and 47.31 semi-bituminous and steam coal."

The remarks of the author on the origin of anthracite are extremely contradictory, and one wonders at times if the author has his facts straight. He declares that there is no relation between the relative disturbance of the strata and the production [formation?] of anthracite. It usually is found that in passing through the South Wales coal fields from east to west the lower beds first exhibit the conversion into anthracite, the change being manifested at successively higher levels going west, until in Pembrokeshire all the seams are anthracite throughout. Yet in contradistinction to the first statement he says that anthracite mining is expensive because the measures are found to be subject to unbalanced stresses which cause the workings to close in after mining. In opposition to the second statement he quotes Dr. Strahan as saying that the Red bed becomes anthracite in a region where seams hundreds of feet below it have not yet assumed that character. The whole subject seems in Great Britain to be still a matter for debate with W. Galloway as protagonist in favor of the more usual theory that the deeper the seam the less the degree of anthracization.

The author quotes Dr. Strahan calling attention to the fact that the South Wales anthracites have a remarkable freedom from ash and that this diminution of ash apparently accompanies the formation of anthracite. "The Ras-las seam has about 7 per cent of ash in the bituminous area in the east of the field, but where it becomes anthracite in the west its ash content falls to only 2 per cent. Thus the percentage of ash diminishes *pari passu* with the decrease of bituminous matter. If the anthracite had been formed merely by the loss of volatile matter from the bituminous coal, the ash content would have increased, not decreased, and the conclusion seems to be that the South Wales anthracites were derived from a purer organic deposit more free from earthy matter than that from which the bituminous coals were formed." In the United States Dr. Strahan would have found that the anthracite coals on the whole have more ash than the bituminous but with some remarkable exceptions, such as the Lykens Valley coals.

Under the side caption "What is anthracite" the author says: "Being virtually pure carbon (the best quality containing quite 94 per cent of that element) the calorific value of Welsh anthracite far exceeds



SOUTH WALES COAL FIELD, ITS PORTS AND RAILWAYS

The shaded portion shows the area being worked by the anthracite collieries but as shown this does not comprise the whole area of the anthracite field. Most of the region is in Carmarthenshire and Glamorganshire, but extensions carry the field into Pembrokeshire to the west. Forty companies with seventy collieries and ten beds are found in the South Wales anthracite field.

that of bituminous, or soft, coals and it contains the least ash (less than one per cent in the higher grades).

It is jet black with a metallic luster. It is very hard, dense and slow burning. It burns steadily with a bright red glow. It gives an intense heat, is clean to handle, continues burning and absolutely smokeless."

He then gives a chemical analysis of the best Welsh anthracite: Carbon, 94.18 per cent; hydrogen, 2.99 per cent; oxygen, 0.76 per cent; sulphur, 0.59 per cent; nitrogen, 0.50 per cent, and ash, 0.98 per cent. The reviewer has been told that anthracite for carbide making can be prepared by hand picking to give some such analysis, which surely is remarkable. Doubtless the analysis given is that of hand-picked samples, but the writer fails to say so.

Much of the book is given to commending the fuel to British users for other purposes than malting (where absence of arsenic favors it), greenhouse work (where its steady burning quality commends it) and the manufacture of producer gas. The British find it difficult to start a fire with it and do not like its absence of lambent flame, the flame which endears bituminous coal to those who use it in an open hearth. The author assures them that it will give twice as much heat as bituminous coal, which may be true when an open fire is used. He deals quite lengthily with the effect of the burning of bituminous coal on the health and comfort of cities and gives some amazing figures, British and American. The book contains 126 pages measuring 4¾x7¼ in., a convenient pocket size.

Modern Researches Into the Nature of Coal

AMONG the brighter minds which are illuminating the nature of coal, F. S. Sinnatt, director of research to the Lancashire & Cheshire Coal Research Association, stands prominently forward though his work is not as well known in this country as it deserves to be. In his "Coal and Allied Subjects" he has brought together the first ten bulletins of the Research Association, which were written by himself and his co-laborers. His publishers are H. F. & G. Witherby, 326 High Holborn, London, W. C. 1.

Coal Age has already published one of the bulletins contained in this book, "Coal Dust and Fusain." The little volume opens with a long introduction on organic chemistry with reference to coal, and then discusses sampling, the influence of an addition of inert matter upon the volatile constituents evolved when coal is heated, coal analysis, Hoo cannel, carbon dioxide in coal, inorganic constituents in coal, the agglutinating power curve, stone dust and the calorific value of coal. Its 205 pages, 4¾ x 7¼ in., will be found of much interest and to contain much condensed information.

HENDRICK'S COMMERCIAL REGISTER OF THE UNITED STATES FOR BUYERS AND SELLERS issues its thirty-fifth annual edition for 1923. In this is listed articles for manufacturing and mining purposes to the number of 17,145 ranging from abrasives to zobos, with the names and addresses of the companies manufacturing them for the market. It is remarkably complete, some items taking two or more pages. In addition to this are lists of trade names and an alphabetical list of the firms mentioned. In all there are 2,321 pages, 8x11¾ in., all of which will be extremely interesting to those who desire to get in touch with all the manufacturers of any given product.

Bituminous Coal-Mine Accounting

FULLY equipped by an intensive experience with the New River Co. and the White Oak Coal Co., and with an extension experience gained when acting as secretary of the National Coal Association, W. B. Reed, author of a book entitled "Bituminous Coal-Mine Accounting," is perhaps as well qualified as anyone to write on that subject. Contact with the mines is written large in all those parts of the work where that feature is of value and contact with governmental decrees and business needs is as evident in other parts. One can hardly go wrong in following the advice of a man so well versed and so competent.

Not that all will agree with his dicta. Probably the quarrels between the various C.P.A.'s and between them and the government will never come to an end. The problem of values, for instance, is a mysterious one so long as markets ebb and flow. A man of the old school once declared that mines did not deplete. He could always sell a going mine for more than he paid for it. Another man hoped to find a purchaser to buy his mine because it had so many miles of expensive heading, though the roadways he wanted to sell ran through acres that he had already robbed of their land values. They were a means of access to the acreage beyond, it is true, but the lands would have been better had the coal been unextracted and the coal closer to the tipple. The haulageways were a debit rather than a credit seen in that light, but seen from the viewpoint that they led to coal beyond they were a credit rather than a debit, provided that coal was good and sufficiently extensive, which in that particular instance was not the fact.

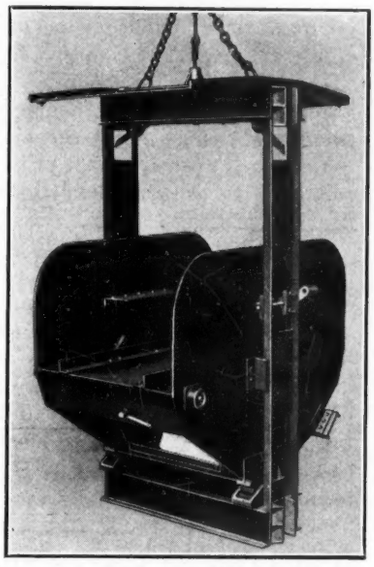
Neither of these men would have a leg to stand on in any consideration of real values, but where unreasonable men can differ so radically there is always abundant room for reasonable men to find an issue—and nowhere more than in accounting. Suffice it to say that the stand taken by Mr. Reed in regard to lands and leaseholds is always sound and reasonable and in accord with sane rules of accounting, which have in view not possible later sales or anticipated profits in operating but present selling prices. However much possible profits may influence the purchaser the owner of a property must figure his operation on the basis of retaining intact the value of the property at the price at which he purchased and erected it or in regard to land at its selling value at some subsequent time. He cannot figure on an uncertain future return.

The little details of checking payments for tonnage, yardage and deadwork, of determining daily costs, of tracking waste, of determining the correct royalty payments and of making daily production reports are treated with the sure grasp of a man who has traveled the mines, climbed railroad cars and shifted the pea back and forth on the mine scales.

In this book of 221 pages measuring 5¾x9¼ in., Mr. Reed has included not only the two rejected Federal Trade Commission forms of 1919 and 1920 but also the form submitted to the National Coal Association by a committee of its members and adopted by that body, together with the federal courts decision in the Maynard Coal Co. case, whereby the form of 1920 was made of no legal effect. There are in this book no less than sixty forms for use in keeping company books. The volume is published by the McGraw-Hill Book Co., 370 Seventh Ave., New York City.

All-Steel Self-Dump Cage for Speedy Work

FOR some time the coal industry has been looking for an all-steel cage. The illustration, herewith, shows one designed and constructed by Robert Holmes & Bros. The dumping arrangement is of the rack and pinion type. This provision makes it possible to tie the bottom of the cage so that any strain will be equally divided over the entire cage and not concentrated in any particular point. The top of the cage is tied in the same manner. The platform or body is made of heavy flange steel, tied together with 8-in. beams and the sides are of one piece, thus strengthening the cage and affording protection to men being hoisted or lowered. Two steel hanger-type keepers lock the car in place. They are so arranged on shafts under the platform that they will work either together or individually. When the cage lands at the bottom these keepers are forced downward allowing the empty car to roll off the cage. In doing so, the car wheels strike a lever which releases the keepers, thereby allowing them to return to their original position ready to receive another car. The purpose of having keepers that work independently of each other is to allow the loaded car to pass over the first keepers, locking itself into position as it strikes the second keepers. All the castings on the cage are of steel.



CAGE BUILT ENTIRELY OF STEEL

View is taken from the dump side. The button on the side plate near the floor of the cage runs in the guide which controls the forward movement of the platform in dumping. One of the forward keepers can be seen projecting from the far angle rail.

Electric Bonds Never Cause Rail Breaks

BY O. P. BOVARD*
Mansfield, Ohio

IN THE description of the meeting of the Coal Mining Institute of America at Pittsburgh on pages 1039 and 1040 of *Coal Age*, Vol. 22 (issue of Dec. 28, 1922), the writer of that article says:

"It was stated that at the meeting of the West Virginia-Kentucky Association of Mine, Mechanical and Electrical Engineers, in Huntington, W. Va., several rails with welded bonds were tested and that it was found that the welding crystallized the rail and weakened it, the rail breaking in every case at point of welding."

Despite the fact that this remark was not put in my mouth and follows in the report a statement made by "another member" I can but feel, in view of the fact that it is recorded that I led the discussion in question, that I should dissociate myself positively with any such point of view, which is contrary in every way to my personal experience and that of the company with which I am associated. In the application of many hundred thousand rail bonds of the welded type on industrial and mine roadways and on electric and steam railways we have never once had a report that a single rail break could be charged to the welded bond.

True in one instance in West Virginia a small rail broke owing to the insertion of an electric bond, this being installed by first burning a hole clear through the rail base with the carbon arc. This treatment injured the rail so severely as to cause breakage, which, however, did not occur at the weld.

It is the policy of practically all manufacturers to recommend that the bond be applied on the head of the rail or on the base. In no case should it be placed on the web, for in that event it is quite liable to start checks in the steel due to expansion of the point under heat when all the surrounding rail is unheated. This practice sets up extremely high stresses which may injure the rail and should, therefore, be avoided.

*Commercial engineer, Ohio Brass Co.

Wages Paid Pick Miners and Machine Miners and Helpers in Montana

	Pick Mining Per Ton	Machine Mining Per Ton	Machine Cutting Per Sq.Ft.
Red Lodge			
Veins Nos. 1, 1½ and 6	$1.20½		
Vein No. 2	1.12½		
Vein No. 3	1.12½		
Veins Nos. 4 and 5	1.08½		
* Stockett	.....	55 c., dry work	Runners 3.65 c.
		56 c., wet work	Helpers 3.28 c.
† Lehigh		87½ c.	2.89 c.
* Sand Coulee	$1.21½	55 c., dry work	Runners 3.65 c.
		56 c., wet work	Helpers 3.28 c.
‡ Loch Ray	1.21½	81½ c.	Runners 3.58 c.
			Helpers 3.27 c.
† No. 4, A.C.M. Co.		92 c.	4 c.
†Brown		92 c.	4 c.
‡ Pearce	1.21½	81½ c.	Runners 3.58 c.
			Helpers 3.27 c.
Merkle	1.28½		
Bearcreek			
† Vein No. 1	1.26½	91½ c.	3.89 c.
Vein No. 2	1.21½		
† Vein No. 3	1.16½	87½ c.	3.64 c.
Vein No. 4	1.31½		
Vein No. 5	1.31½		
International			
Vein No. 1	1.26½		
Vein No. 2	1.21½		
† Vein No. 3	1.16½	87½ c.	3.64 c.
Vein No. 4	1.31½		
† Vein No. 5	1.31½	99 c.	3.60 c.
Smokeless and Sootless			
Vein No. 1	$1.26½		
Vein No. 2	1.21½		
† Vein No. 3	1.16½	87½ c.	3.64 c.
Montana Coal & Iron Co.			
Vein No. 1	1.26½		
† Vein No. 2	1.21½	91½ c.	3.89 c.
† Vein No. 3	1.16½	87½ c.	3.64 c.
Eagle			
† Vein No. 3	1.16½	87½ c.	3.64 c.
Washoe			
Vein No. 1	1.26½		
Vein No. 2	1.21½		
Vein No. 3	1.16½		
† Klein	1.16½		
Republic No. 4			
4 to 5 ft. vein	1.26½		
Over 5 ft.	1.16½		
† Roundup No. 3	1.16½	97 c.	2.515 c.
† Roundup No. 5	1.16½	97 c.	2.515 c.
Star	.....	Same as Roundup	

* Drillers working as partners get 16½ c. per coal hole. Cutting by punchers.
† Electric chain machine cutting.
‡ Cutting by punchers.

It is interesting to compare these figures with the wages paid machine miners, runners, and helpers in West Virginia, listed in *Coal Age*, vol. 22, page 878, Nov. 30, 1922:

	Machine Mining per Ton		
	Minimum	Maximum	Sample Average
West Virginia	58 c.	98 c.	69 c.
Montana	55 c.	99 c.	83 c.

Conference to Consider Standardization of Engineering Abbreviations and Symbols

A CONFERENCE to determine whether unification of engineering abbreviations and symbols should be undertaken, and if so, what the scope of such work should be, has been called by the American Engineering Standards Committee in response to requests received from the American Institute of Electrical Engineers, the American Society of Mechanical Engineers, and the Association of Edison Illuminating Companies. The conference will meet in the Board Room of the American Society of Mechanical Engineers, Engineering Societies' Building, New York City, at 10 a.m., Tuesday, Feb. 13.

As the committee's machinery has been the accepted medium during the last four years for national standardization of raw materials, industrial processes and manufactured products in the engineering field, it was requested to call a conference to consider the standardization of abbreviations and of the symbols used in engineering equations and formulas. Because of the peculiar nature of the subject, and the fact that some of the interested organizations will be unable to have representatives present, the Standards Committee has provided a questionnaire through which such organizations may send by mail, for consideration of the conference, such information as they consider desirable.

The need for the standardization of abbreviations is emphasized by the existing confusion resulting from the variety of symbols for one thing and the multiplicity of meanings of one symbol. The expression "pounds per square inch," for instance, may be represented by at least a half dozen abbreviations. Some English journals use "h.p." for "high potential," whereas in the United States it is generally used to mean "horsepower." Whether or not the letters h.p. should be capitalized or hyphenated is not agreed. The mark ″ may mean inches, seconds, or a quotation. It is used also in mathematical work for distinguishing letters in the same group of quantities, as A′, A″, etc.

Great confusion necessarily occurs because of the use of three or more different symbols for the same thing. The economies which will be gained by eliminating these ambiguities will be great both for the student and for the engineer who must refer to the varied literature of a technical subject. American standardization of engineering symbols and abbreviations should also eliminate the difficulty which foreign engineers have in correctly translating English articles into their own language, when they find widely divergent practices in the use of abbreviations.

The conference on Feb. 13 will take up the following questions for discussion and decision:

(1) Brief review of present practice of representative organizations.

(2) Brief review of practice of international and of foreign bodies.

(3) Shall the unification of abbreviations used in engineering reports, tables, publications, etc., be undertaken?

(a) If so, what shall be the scope of the work?—e.g., shall a broad program covering the general engineering field be undertaken, or shall the work be confined to one or more restricted fields?

(b) If the latter, what shall these fields be?—e.g., civil, chemical, electrical, mechanical or others, including municipal, sanitary, military, railway, mining, architectural, metallurgical, management?

(4) Shall the unification of symbols for quantities used in engineering equations, formulas and tables, be undertaken?

(a) If so, what shall be the scope of the work?—e.g., shall a broad program covering the general engineering field be undertaken, or shall the work be confined to one or more restricted fields?

(b) If the latter, what shall these fields be?—e.g., civil, chemical, electrical, mechanical, or others, including municipal, sanitary, military, railway, mining, architectural, metallurgical, management?

(5) If both lines of activities (items 3 and 4) are to go forward, should they be carried out as parts of a single undertaking or as two separate undertakings?

(6) How shall such unification be related to similar lines of work?—e.g., mathematical signs and conventions used in drawings and diagrams?

(7) Is it desirable that either line of activity be correlated with work on definitions of terms used in engineering practice?

(8) What recommendations, if any, shall be made to a continuing (sectional) committee, should one be organized—e.g., as to orienting the work in such a way as to facilitate international agreement?

(9) How shall the work be organized? For example, is it desirable to make the working committee (or committees) sufficiently large to be thoroughly representative, or is it desirable to keep it smaller, sending successive drafts of standards, minutes, etc., to interested organizations for comment and criticism?

Coke Output Gained Slightly in December

The output of byproduct coke continued to increase slowly in December. The total production was, in round numbers, 3,063,000 net tons, an increase over November of 138,000 tons. The increase was due in part to the fact that December is a 31-day month and November a 30-day month. The ratio of production to capacity was 83.5 per cent against 51.8 per cent in December 1921. This compared favorably with the ratio at times when demand for coke was most active.

Production of beehive coke also increased slightly, the total output being 1,233,000 net tons. The extent of the recovery from the depression that prevailed in 1921 is shown by the fact that the rate of output in December was 167 per cent greater than the monthly average during that year. The present rate, however, is still far behind that during the war years and the two years immediately following.

MONTHLY OUTPUT OF BYPRODUCT AND BEEHIVE COKE (*a*)

(Net Tons)

	Byproduct Coke	Beehive Coke	Total
1917 Monthly average	1,870,000	2,764,000	4,634,000
1918 Monthly average	2,166,000	2,540,000	4,706,000
1919 Monthly average	2,095,000	1,638,000	3,733,000
1920 Monthly average	2,565,000	1,748,000	4,313,000
1921 Monthly average	1,646,000	462,000	2,108,000
1922 Monthly average	2,374,000	669,000	3,043,000
Oct., 1922	2,806,000	876,000*b*	3,682,000
Nov., 1922	2,925,000*b*	1,138,000*b*	4,063,000
Dec., 1922	3,063,000	1,233,000	4,296,000

(*a*) Excludes screenings and breeze. (*b*) Revised from last report.

ESTIMATED MONTHLY CONSUMPTION OF COAL FOR MANUFACTURE OF COKE

(Net Tons)

	Consumed in Byproduct Ovens	Consumed in Beehive Ovens	Total Coal Consumed
1917 Monthly average	2,625,000	4,354,000	6,979,000
1918 Monthly average	3,072,000	4,014,000	7,086,000
1919 Monthly average	2,988,000	2,478,000	5,466,000
1920 Monthly average	3,684,000	3,665,000	6,349,000
1921 Monthly average	2,401,000	706,000	3,107,000
1922 Monthly average	3,411,000	1,056,000	4,467,000
Oct., 1922	4,032,000	1,382,000 (*b*)	5,414,000
Nov. 1922	4,203,000 (*b*)	1,795,000 (*b*)	5,998,000
Dec. 1922	4,401,000	1,945,000	6,346,000

(*a*) Assuming a yield in merchantable coke of 69.6 per cent of the coal charged in byproduct ovens, and 63.4 per cent in beehive ovens. (*b*) Revised from last report.

U. S. Coal Commission to Study Productivity of Labor Under Union and Non-Union Conditions

By Paul Wooton
Washington Correspondent of *Coal Age*

Efficiency and productivity of labor under union and non-union conditions are to be studied carefully by the President's Coal Commission. Public announcement that this will be undertaken was made by Chairman Hammond on Feb. 3. He emphasized that it must be established whether or not it costs more money to produce coal at mines employing union labor than at those who observe an open-shop policy. The efficiency of labor in union mines, he said, is alleged to be 50 or 60 per cent, as compared with an efficiency of 80 per cent in non-union mines. The commission expects to make such a searching investigation of the question as to establish indisputably the facts in that connection.

At the Feb. 3 conference with the Washington correspondents Mr. Hammond reiterated the importance which the commission is attaching to storage. An engineer has been assigned to investigate minutely the matter of local storage at the coal mines. He also said that the commission is more convinced than ever that the railroads must store coal and abandon the policy of commandeering without specific permission in each case. The danger of spontaneous combustion of coal in storage, he said, appears to have been much magnified.

To attempt to divert surplus mine labor to agricultural work during slack business at mines, by the establishment of third-class fares or other expedients was frowned upon by Mr. Hammond, who declared that a way should be found to maintain uniform operation of coal mines throughout the year, thus allowing surplus labor to take permanent employment in other lines. By keeping up the bars against immigration only a few years will be required, he said, until this surplus is absorbed.

Central Stations Would Minimize Coal Handling

A further study of super-power will be recommended by the commission, it was revealed at the conference. While it was admitted that mine-mouth use of coal has a limited application only, due to the difficulty in obtaining condensing water, yet it is believed much transportation of coal can be avoided by well-located central stations.

The commission has given no formal consideration to any plan for facilitating financing of coal storage or obtaining insurance for such coal. In reply to questions, both Mr. Hammond and Dr. George Otis Smith indicated that they see no reason why the commission should concern itself particularly with any plan to make paper covering coal in storage eligible for rediscount at Federal Reserve banks or to take up other details of financing the handling of coal. So far as insurance is concerned, it was suggested that the best insurance for a coal pile is the installation of a crane and a clamshell bucket.

When asked what the commission thought of a plan to pool coal to be handled through large selling agencies, Mr. Hammond declared that such a recommendation likely would lead to a charge of paternalism. He admitted that the commission is very anxious to ascertain why a 5-per cent shortage causes a 200-per cent price advance and he said that the interests making up the coal industry should stop making faces at each other. He would hate to think any branch of the industry is as bad as the others assert that it is.

The commission as yet has no definite idea as to the legislation it will recommend. Every effort will be made, Mr. Hammond asserted, to suggest as little legislation as is possible, just enough to insure the untrammeled play of economic forces. Before public hearings are undertaken, an effort will be made to obtain substantial agreement on as many as possible of the controversial points. By resorting to this process of elimination, he believes the public hearings can be confined to the comparatively few points on which no agreement within the industry is anticipated. By that time the commission will have developed a great many facts for itself and will be in a position to know if witnesses have their facts straight.

During the course of the conference Mr. Hammond and Dr. Smith were asked, since the commission's force is necessarily a small one, if it would not be possible for the organizations of operators, mine workers, wholesalers and retailers to contribute, under proper safeguards, findings of fact which would supplement the work being done by the commission's specialists. Neither of the two commissioners was inclined to look with favor on the suggestion. It is feared that public confidence in the commission's conclusions would be weakened if any of its findings were based on data prepared by the operators, the mine workers or other branches of the industry, regardless of the steps the commission might take to verify such data.

A flagrant outrage in the retailing of coal, Mr. Hammond said, appears to be taking place in the sale of coal by the bushel. The prices which the very poor are being compelled to pay for coal will be difficult to defend, Mr. Hammond thinks. The commission expects to look into that phase of the coal trade in the near future.

Bill Amending Coal Commission Act to Come Up in House Soon.

The bill to amend the act creating the U. S. Coal Commission so as to extend its powers, particularly in regard to obtaining sworn answers to questionnaires and providing penalties for failure to answer or for giving false answers, will be taken up in the House Friday, Feb. 9, or will go over until next week.

The bill was called up Monday by the Interstate Commerce Committee when it was reached on the unanimous consent calendar of the House. Representative Winslow, chairman of the committee, asked for its passage, but Representative Blanton, of Texas, objected. One objection was sufficient to prevent consideration Monday.

As the Interstate Commerce Committee has considerable legislation pending, the steering committee has set aside Friday for consideration of bills from this committee, with the possibility that the latter part of Thursday's session will see the start of this work. The committee has eight bills that its members consider important for early consideration and Chairman Winslow has set seven of them ahead of the coal commission amendment. If the commission bill is not reached Friday, a special rule to bring it before the House as an extraordinary item of business will be asked early next week, Chairman Winslow has announced.

Judge Alschuler Off Coal Commission

Judge Samuel Alschuler, of Chicago, has forwarded to President Harding his resignation as a member of the United States Coal Commission, and it will be accepted, it was announced at the White House Feb. 2.

Judge Alschuler's letter to the President tendering his resignation was not made public, but it was said at the White House that his action was prompted largely because, under the law, he could not serve on the commission and at the same time retain his position on the Circuit Court bench.

It was also said at the White House that the President will name a successor to Judge Alschuler, thus making the commission consist, as now, of seven members. No intimation was given as to whom the President has in mind to fill the vacancy nor when he would make a selection.

Pacific Coal Industry Not Overdeveloped

To the editor of *Coal Age*:

The statements of the U. S. Coal Commission, the American Mining Congress, *Coal Age* and, I might say, all technical papers as well as the newspapers that "there are one-third too many coal mines in operation" needs correction in so far as our county is concerned.

This statement could apply to the part of the United States east of the Mississippi River but not the part west of the river to the Pacific Coast. People in the West, and more particularly the Pacific Coast, who are trying to secure capital in the East to develop coal lands are confronted with this fact when they seek money in the East.

Montana, Wyoming, Colorado and New Mexico produce coal and are able to dispose of all they produce. Utah produces much coal but not enough to supply the demand on her. Arizona, Nevada and California produce no coal and have to depend on Colorado and Utah and coal by imports. Oregon produces about 1 per cent of the coal she uses and that is lignite produced at Coos Bay. Most of Oregon's coal comes from Utah. Idaho produces no coal. Lately they have been trying to open a coal vein in the Boise Basin, southern Idaho. She gets all her coal from Colorado, Utah, Wyoming, Montana, and British Columbia and Alberta, Canada. The State of Washington produces about 2,500,000 tons per year and consumes about 5,500,000 tons per year. Coal is shipped in from Colorado, Wyoming, Montana, Utah, Alberta, British Columbia and some comes in by boat from Japan, China, Australia, New Zealand and boats coming from Europe for lumber and grain bring in coal as ballast. The smelter at Tacoma gets all its coke by boat. California, Oregon and Idaho get coke from Utah and Crows Nest, B. C., and by boat. Ships plying from Atlantic ports through the Panama Canal to Pacific ports try to bring along enough coal to return on or to get back past the canal. Most all the ships sailing from Oregon and Washington go to Vancouver Island, B. C., for coal.

Records of steamships operating from coast to coast show that the best Atlantic Coast steamship coal is 25 per cent better than Utah or British Columbia coal and about 40 per cent better than the State of Washington coal (except the Roslyn, which is owned by the Northern Pacific Railway and consumed by that railway), which is not quite as good as the best coals of Utah or British Columbia.

In the West since the war, 1914, very few mines have been opened up and the old mines are getting more difficult and costly to operate.

Most of the coal land in Washington is within the Northern Pacific land grant and it is difficult to secure land enough for a coal mine without including Union Pacific Ry. lands and they try to dictate in leasing and want the freight haul.

At Vancouver Island, B. C., steamships pay $7.50 per ton for coal and for the same coal at Tacoma and Seattle, $11.60, and for Utah, $15.50. At Columbia River ports Utah coal for steamships is $13.75. In Japan and China they coal from $5 to $6; at California ports, Utah coal, $11.50 to $12.50. You can compare these prices on the cost of operating ships on the Pacific Coast against the coal prices on the Atlantic ports. The majority of the coal miners on the Pacific coast of British Columbia are Japs, Chinese and Hindus—in the United States, all whites.

Utah coal in Portland, Ore., retails for $17.25 per ton; lignite, about $10. Coals produced about Seattle and Tacoma retail from $8 to $13 per ton. All mining out this way is done in a small way compared with coal mining in Ohio, West Virginia, Virginia and Pennsylvania.

If some of the Eastern coal producers would come out to the Pacific Coast and mine coal the way they do in the East, they could make good profits by introducing extensive and cheap mining. All the Western coal producers have a hard time securing money. A friend of mine just returned from New York. He was trying to secure cash to build a couple of miles of railroad and reorganize a coal mine to extend production, but the impression that there were too many mines now in operation defeated his purpose and it is too much for the small operator or one operator to buck against public sentiment when the coal magazines and periodicals and government agencies are crying about that there are at least one-third too many coal mines opened up, which is not a fact in the Rocky Mountains and west to the Pacific Coast. *Coal Age* could do a great and good service by correcting this erroneous report and impression.

A professor who taught seventeen years in the Agricultural College in Iowa came to Washington and purchased a 960-acre fruit ranch which was paying well. In four years he assigned to his creditors. He then published a statement that it was one thing to teach farming and another thing to farm—"That no person should teach farming unless he had ten years' experience in farming first," and I think the same thing about the coal.

J. W. McBRIDE.
Cinnebar Coal Mine.

Bremer, Lewis Co., Wash.,
Jan. 18, 1923.

Trade Commission's Amended Answer in Maynard Case Stricken Out

The Supreme Court of the District of Columbia on Jan. 30, 1923, sustained the motion of the Maynard Coal Co. to strike out the "amended answer [of the Federal Trade Commission] upon the ground that it raises no defense." The Maynard case is the suit of the National Coal Association to restrain the Federal Trade Commission from collecting cost reports from coal operations. The case so far, including this decision, has gone clearly in favor of coal operators.

Justice Jennings Bailey said in part as follows:

"I think that the motion should be sustained. In my opinion no different question is raised from that decided in the case of the Claire Furnace Co. vs. the Federal Trade Commission, recently decided by the Court of Appeals.

"The defendant [the Federal Trade Commission] attempts to distinguish this case, and refers to the allegations of the amended answer to the effect that coal is impressed with a public interest, but the mere fact, if it be true, that coal is impressed with a public interest does not transfer the jurisdiction of its control from the states to Congress. The question is not whether a state may regulate the price and production of coal upon the theory that it is impressed with a public interest but whether such power has been given to Congress, and I find no such power.

"The defendant seems to confuse articles shipped in commerce with instrumentalities of commerce. The power to regulate the latter does not include the power to regulate the former. Nor does the fact that an article is necessary for the operation of an instrumentality of interstate commerce make it subject to regulation by Congress. If this were true, Congress would have the power to regulate the production of steel, necessary for the construction of locomotives; lumber, for the construction of coaches; rubber, for the construction of springs; food and clothing for the sustenance of the train crews; in fact, there is almost no article that might not be included in this manner. This question was fully covered by the recent decision of the Supreme Court in Heisler vs. Thomas Colliery Co. (No. 541—Nov. 27, 1922). In that case the State of Pennsylvania imposed a tax upon anthracite coal. The plaintiff sought to have the act adjudged unconstitutional. It was contended in that case that the tax was a regulation of interstate commerce."

Working a Year Non-Union, Mine Signs Up

An agreement has been entered into between the Fairmont & Lowesville Coal Co. and the United Mine Workers of subdistrict 4 of district 17, the coal company having signed the supplemental agreement late in January. For more than a year the company had been operating on a non-union basis and during that period action had been taken by the company to obtain possession of the dwellings of those who declined to work. About seventy-five miners are employed at the Fairmont & Lowesville company's mine and in recent weeks the officials of the union carried on such a vigorous organization campaign among them that the miners finally went on strike. There are several companies on the Monongahela Railway still operating on a non-union basis, however, among them being the River Seam Coal Co., the Sturm Coal Co. and the Delmar Coal Co.

Daugherty Questions Good Faith in Sale Of Lehigh & Wilkes-Barre Coal Co.

Attorney General Daugherty filed in the U. S. District Court in Philadelphia Jan. 30 a petition raising the question whether the proposed sale of the stock of the Lehigh & Wilkes-Barre Coal Co. to the Jackson E. Reynolds Syndicate of New York was made in good faith.

The stock of the coal company, which is owned by the Central Railroad of New Jersey was ordered sold under the U. S. Supreme Court decree for the dissolution of the Reading company's interests. The Jersey Central is controlled by the Reading company. The petition asks that any and all evidence bearing on the proposed sale be heard in court.

When the federal court was asked to confirm the sale to the Reynolds syndicate objections were raised by various parties on the ground that a bid by the Franklin Securities Corporation of Philadelphia was a better one. All objections were withdrawn, with the exception of that entered by Isaac T. and Mary T. W. Starr, minority stockholders in the Jersey Central.

One of the principal objections of the Starrs has been that Jackson E. Reynolds, head of the syndicate, who was officially connected with the Jersey Central and the Lehigh & Wilkes-Barre Coal Co., received "inside information," and that many members of his syndicate were disqualified from purchasing the coal stock. Hearings on the Starr objections were postponed several times.

Central Pennsylvania Renews Wage Scale

Operators and miners in the central Pennsylvania bituminous coal field came to an agreement on wages and working conditions at a conference between members of the Central Pennsylvania Bituminous Operators' Association and the officials of District No. 2, U.M.W. of A., held in Altoona on Wednesday and Thursday, Jan. 30 and 31. The agreement is identical with that under which the miners are working now and under which they went to work at the end of the strike in August, 1922.

The text of the brief agreement dated Altoona, Jan. 31, is as follows: "It is hereby agreed by the joint conference of the Association of Bituminous Coal Operators of Central Pennsylvania and the United Mine Workers of America of District No. 2 that the working agreement terminating on March 31, 1923, is hereby renewed and extended for one year from April 1, 1923, to March 31, 1924, in all the terms, provisions, customs and conditions."

The agreement was signed for the operators by B. M. Clark, president of the association; G. Webb Shillingford, vice-president, and Charles O'Neill, secretary-treasurer, in addition to twelve other operators, including John C. Forsythe, Rembrandt Peale, J. William Wetter, J. R. Caseley, C. B. Maxwell, E. W. Robertson, J. S. Sommerville, William Lamont, I. A. Boucher, Harry Boulton and M. J. Bracken.

The miners were headed by John Brophy, president of District No. 2, who signed the agreement, along with James Mark, vice-president, and Richard Gilbert, secretary, in addition to nineteen workers of the district attending the convention.

The scale provides as follows:

Pick mining, per gross ton, $1.28.

Pick mining, per net ton, $1.14.

Machine loading, per gross ton, $0.865.

Machine loading, per net ton, $0.772.

The inside day wage scale is:

Motormen, $7.60; spraggers, $7.50; skilled wiremen in charge of work being done, $7.50; wiremen's helpers, $7.27; track layers, $7.50; track layers' helpers, $7.27; bottom cagers, $7.50; drivers, $7.50; trip riders, $7.50; water and machine haulers, $7.50; timbermen, $7.50; pipe men, $7.42; trappers, $4.68; cutters, $7.60; scrappers, $7.35; all other inside day labor, $7.27.

The outside day wage scale is:

Dumpers, $6.92; ram operators, $7.10; pushers, $6.68; trimmers, $6.86; car cleaners, $6.60; firemen now working on change shifts of eight hours each, $7.10.

The day wage scales, both inside and outside, are identical with those operative when the men went to work August 16, 1920. The mining and loading prices are the same as those set April 1, 1920.

Three Sign Wage Agreements at Pittsburgh

Three wage-scale agreements were signed in western Pennsylvania last week continuing the present agreement for another year to March 31, 1924, in line with the tri-state agreement signed in New York Jan. 23.

The agreements signed last week, all with District No. 5, United Mine Workers of America, were signed in Pittsburgh, Pa., by the Pittsburgh Coal Producers' Association, the Thick Vein Freeport Coal Producers' Association and the Pittsburgh Coal Co., the last-named having withdrawn from the Pittsburgh Coal Producers' Association when that association signed the present agreement last summer.

Coal Companies Ask I. C. C. to Deny Reopening of Car-Rating Cases

The Interstate Commerce Commission has been petitioned not to grant the request of the carriers to reopen certain cases dealing with the rating of coal mines and the distribution of coal cars. The petition comes from the Slab Fork Coal Co., Scotia Coal & Coke Co., South Side Co., Turkey Knob Coal Co., Coal Run Coal Co., Branch Coal Co., Beachwood Coal & Coke Co., Greenwood Coal Co., Laurel Creek Coal Co., Quinnimont Coal Co., Maryland Coal & Coke Co., Star Coal & Coke Co., Ephraim Creek Coal & Coke Co. and the Stover Coal Co.

In addition to specific objections to the contentions of the carriers, the coal companies point out that the commission on its own motion has entered upon a general investigation of the reasonableness and propriety of all rules and regulations governing the rating of coal mines and the distribution of coal cars, including the 100-per cent rule which is at issue in the case which the carriers seek to reopen. For that reason the coal companies feel that questions involving the 100-per cent rule should be settled in the general opinion which will be issued in the assigned car case.

West Virginia Legislators Would Tax Coal

A number of bills have been introduced in both houses of the West Virginia Legislature **proposing a production tax on coal**, the rate proposed ranging all the way from 2c. to 10c. a ton. A bill introduced by Senator Suddarth, of Taylor County, fixes 2c. a ton as the rate to be paid. The Zimmerman bill, originating in the House, proposes a tax of 1 per cent of the value of all coal produced in the state, differing from other proposed production, privilege, license or depletion tax measures in that the tax is based on value rather than tonnage and being in that respect a sales tax. In the existing gross sales tax law the rate paid by coal is 0.4 per cent. In the bill introduced by Senator Hugus, of Ohio County, the rate proposed is 4c. a ton, at the mouth of the mine.

None of the measures proposed will be acted upon during the present or preliminary session but at the second or adjourned session beginning about the middle of March the principal tax issue will be between the advocates of a production tax and the advocates of a sales tax, coal operators generally favoring the latter, asserting that is more equitable to pay on value rather than to pay a flat rate on production without regard to the quality and market value of the coal produced.

600 Entombed in Silesian Mine Explosion

An explosion of fire damp in the Heinitz mine, at Beuthen, Polish Silesia, Jan. 31, entombed 600 miners, according to a press dispatch.

Of the 800 men composing the morning shift, who went into the mine shortly before the explosion, 300 still had not been rescued up to a late hour Feb. 1. Sixty bodies had been removed at latest advices and many of the rescued were suffering from injuries and were taken to hospitals.

To Penalize Anthracite Operators Failing To Report 1922 Output for Taxation

Anthracite companies and producers that failed to file reports of their 1922 production for taxation purposes by Feb. 1, unless they obtain extensions of time for filing, will be penalized, according to an announcement by Auditor General Samuel S. Lewis, of Pennsylvania. The Auditor General said that he purposes collecting the penalty even from companies whose tax cases for 1921 are still in litigation. Numerous companies, he said, have not filed reports nor asked for an extension of time.

The reports are desired, the state's fiscal officer said, in order to compute the tax due the commonwealth and also for an investigation the department is making relative to prices at the mines. In all cases where producers fail to file their reports promptly, the Attorney General's department will be notified.

A statement issued last week by the Auditor General's department shows that $2,000,000 has either been collected or is in process of collection from the anthracite producers of Pennsylvania, who owe taxes on coal mined during the last half of 1921. The statement follows:

"There have been recorded to date payments aggregating $1,807,588.15 for anthracite tax for the period from July 1 to Dec. 31, 1921, most of these payments having been made within a little more than a month. There is also in the process of payment sufficient to bring the total to approximately $2,000,000. . . .

"The total of the accounts settled for the period mentioned is $3,271,534.82, including some estimated settlements subject to revision upon the determination of pending litigation and not including interest charges. Payment of unpaid accounts is largely held up by litigation. . . .

"For the period named, accounts were made against 225 operators, representing 324 collieries or operations. No tax was assessed against 58 operators having unproductive collieries or operations during the period. Payments have been made to date by 109 operators, leaving 58 unpaid accounts."

Coal-Grading Bill Up in Pennsylvania Senate Penalizes Misrepresentation

A coal-grading bill was introduced in the State Senate at Harrisburg, Pa., Jan. 30 by Senator Horace W. Schantz, Lehigh County. It was referred to the Committee on Mines and Mining. The measure makes it unlawful to misrepresent the grade of coal sold or offered or advertised for sale. The bill covers anthracite, bituminous, semi-bituminous and all other grades of coal.

According to the provisions of the bill all coal sold within Pennsylvania is graded as follows:

Grade A—All coal containing less than 10 per cent of ash and less than 1½ per cent of sulphur.

Grade B—All coal containing less than 15 per cent of ash and less than 3 per cent of sulphur.

Grade C—All coal containing less than 20 per cent of ash and less than 4½ per cent of sulphur.

Grade D—All coal not classed as A, B or C.

The bill provides that all samples to determine the ash and sulphur contents shall be taken from the coal as it is sold or offered for sale on the market and not from samples taken in the mines. All samples analyzed shall be taken from a fair proportion of the whole quantity of the coal in question.

Under the provisions of the measure any person, association, copartnership or corporation selling or offering for sale or advertising for sale any coal, representing it to be of the first three grades, when the coal is below those standards, is guilty of a misdemeanor and upon conviction shall be sentenced to a fine of $1,000. The proposed act does not prohibit the sale of coal on specifications as to ash and sulphur content other than those designated by the provisions of the bill.

Senator Walsh, of Massachusetts, has presented to the U. S. Senate a letter from the State Fuel Administrator of Wisconsin, alleging impurities in coal shipments. Senator Walsh said inferior coal was being sold at high prices and that some method of standardization must be adopted to protect the public against deceit and fraud. The Wisconsin Administrator charged that anthracite coal now shipped carries greater percentages of impurities than ever before, and that the states are powerless to act.

The Massachusetts Senator has introduced a bill to establish standards for anthracite shipped in interstate or foreign commerce. The measure authorizes the Secretary of Commerce to establish by regulation standards of size, quality and condition of anthracite to be known as the U. S. Official anthracite coal standard. The bill forbids the shipment or delivery for shipment in interstate or foreign commerce of anthracite which is not of a grade fixed by these standards, and anthracite of a grade fixed by these standards under the name, description or designation of any other standard. The bill would permit the shipment or delivery for shipment to any foreign country of a grade not fixed by standard according to the specification or directions of a foreign purchaser, if the shipment is not in conflict with laws of such foreign country. Violation of the law would subject the offender to a fine of not more than $1,000 or imprisonment for not more than one year, or both. The bill was referred to the Committee on Labor, which reported favorably on it Feb. 5.

Hearing of Motion to Dismiss Petition for Logan Injunction Set for Feb. 12

Argument on the motion of counsel for the Logan Coal Operators Association to dismiss a bill of complaint filed by District 17, United Mine Workers, in the U. S. District Court for the southern district of West Virginia on Feb. 1 to restrain interference with any effort which might be made by the union to organize the Logan field, has been set for Feb. 12 by Judge George W. McClintic. In its application for an injunction the district union seeks also to restrain the Sheriff of Logan County from accepting money from the coal operators of the district for the pay of deputy sheriffs.

The argument of attorneys for the operators is that the case does not come within the jurisdiction of the federal court "since the violation of no federal law or interstate commerce regulations are charged," and it is also contended by them that all the matters charged are "solely within the jurisdiction of the state courts."

In applying for an injunction in the federal court the union seeks to prevent Sheriff Don Chafin of Logan County from interfering with the members or organizers of the union in the Logan County field, or in other words to give them free reign.

This is the first time the union has resorted to the injunction process since the decision of the U. S. Supreme Court in the Coronado case and operators in southern West Virginia look upon the petition for an injunction as the beginning of another general attempt to unionize the large territory south of the Kanawha River in West Virginia, all of which is now on a non-union basis.

Pennsylvania Coal and Iron Police to Be Assigned Only in Real Emergency

Governor Gifford Pinchot, of Pennsylvania, has made an announcement to the effect that the coal and iron special police, heretofore commissioned by the Governor without much formality, will in the future only be assigned where a real emergency exists and then only after investigation, if necessary.

A bill presented in the Pennsylvania Senate by John E. Stavitski, of Luzerne County, prohibits sheriffs, unless called upon by the local police authorities, to interfere in times of riot or disturbances. The bill provides that in all cities, boroughs or townships wherein there is an organizzed police force, it shall be unlawful for the sheriff of the county to enter therein, either in person or by deputy, for the purpose of suppressing riots or disturbances, unless he has first been requested by the officer or officers having control and authority over the police force of such municipalities.

Soft-Coal Stocks on Jan. 1 Total 36,000,000 Tons, Sufficient for 26 Days, Survey Report Shows

Industries other than steel and coke had on hand Jan. 1 an average of 40 days' supply of bituminous coal, retail coal dealers' bituminous supply amounted to 18 days, electric utilities had 33 days' supply and coal-gas plants had 60 days' supply, according to the latest survey of coal stocks by the U. S. Geological Survey.

At the rate coal was burned in November and December of last year, the report said, the stocks of soft coal on hand Jan. 1, 1923, would last 26 days and there are indications that stocks have increased since that date.

On Oct. 1, 1922, stocks on hand were sufficient to last 21 days and on June 1, 1920, when stocks were at the lowest point on record, they were sufficient for only 15 days.

The Survey shows that on Jan. 1, 1923, there were approximately 36,000,000 net tons of soft coal on hand, an increase of 4,000,000 net tons over Nov. 1, 1922, and 6,000,000 net tons over Oct. 1, 1922.

Stocks of bituminous coal in retail yards on Jan. 1, 1923, were approximately three-quarters what they were on the corresponding date a year ago. Stocks of anthracite were not quite 30 per cent of those of the same time a year ago. The total stocks of retail dealers—including both hard and soft coal—showed a decrease of 52 per cent when compared with those of Jan. 1, 1922.

Reports from 583 representative coal yards show an average of 10 days' supply of anthracite on hand. The 124 yards examined in the New England states had an average supply of 13 days each. When compared with reports received from 516 yards on Nov. 1, 1922, the survey indicates an increase of 1 per cent over that date; 70 per cent less than on Jan. 1, 1922; 41 per cent less than on Jan. 1, 1921, and 54 per cent less than on Jan. 1, 1919.

The report shows that many of the Western States had large stocks and that the decrease was most marked in the

DAYS' SUPPLY OF SOFT COAL IN HANDS OF REPRESENTATIVE INDUSTRIAL CONSUMERS, PUBLIC UTILITIES AND RETAIL COAL DEALERS, JAN. 1, 1923.

(Figures represent number of days stocks would last at current rate of consumption)*a*

State	Industries Other Than Steel and Coke		Retail Coal Dealers Bituminous		Electric Utilities		Coal-Gas Plants	
	No. of Plants Reporting	Days' Supply Jan. 1, 1923	No. of Dealers Reporting	Days' Supply Jan. 1, 1923	No. of Plants Reporting	Days' Supply Jan. 1, 1923	No. of Plants Reporting	Days' Supply Jan. 1, 1923
Total U. S.	2,265	40	1,027	18	754	33	112	60
Maine	27	63	8	39	2	1	2	134
New Hampshire	32	66	12	22	3	42	1	67
Vermont	40	74	5	28	*b*	*b*	*b*	*b*
Massachusetts	270	57	57	23	45	42	10	66
Connecticut	67	96	26	26	17	31	2	74
Rhode Island	59	86	13	13	4	30	1	76
Total New England	495	68	121	22	71	38	16	72
New York	166	50	31	10	33	31	6	57
New Jersey	100	47	13	15	27	62	1	25
Pennsylvania	129	29	39	18	53	40	3	41
Maryland	32	22	12	10	12	20	3	98
Delaware	20	44	5	3	2	33	*b*	*b*
Dist. Columbia	10	27	12	6	2	20	*b*	*b*
West Virginia	42	10	14	6	14	26	*b*	*b*
Ohio	137	32	54	11	61	31	5	32
Indiana	96	36	109	15	46	31	9	60
Illinois	137	23	85	17	44	30	8	57
Michigan								
No. Peninsula	17	138	5	53	{ 34	{ 52	{ 12	{ 36
So. Peninsula	99	51	59	18				
Wisconsin	83	44	35	32	27	53	5	258
Minnesota	59	96	9	25	34	41	2	16
Iowa	29	21	81	16	48	29	3	104
North Dakota	6	5	8	19	11	15	2	23
South Dakota	2	22	5	15	12	40	*b*	*b*
Nebraska	8	10	9	39	25	24	*b*	*b*
Virginia	27	34	16	11	15	24	2	36
North Carolina	39	31	11	22	11	31	5	15
South Carolina	42	42	13	19	9	69	2	23
Georgia	27	58	25	39	7	23	2	43
Florida	11	58	4	33	2	21	1	36
Kentucky	26	23	44	15	22	26	3	23
Tennessee	66	21	25	21	11	15	3	33
Alabama	36	27	28	23	5	11	5	38
Mississippi	3	..	14	47	13	34	4	36
Missouri	69	33	41	13	37	16	*b*	*b*
Kansas	45	22	7	35	9	23	*b*	*b*
Oklahoma	19	67	6	24	4	79	*b*	*b*
Arkansas	20	29	6	16	2	33	*b*	*b*
Louisiana	2	25	5	35	3	156	1	138
Texas	48	29	1	5	13	18	1	40
Colorado	31	39	9	21	16	21	1	55
New Mexico	4	43	8	21	6	32	*b*	*b*
Arizona	8	53	5	40	*b*	*b*	*b*	*b*
Utah	18	50	7	28	*b*	*b*	1	58
Nevada	7	41	8	34	*b*	*b*	*b*	*b*
Wyoming	3	..	5	2	6	11	*b*	*b*
Montana	15	39	6	24	5	12	*b*	*b*
Idaho	14	32	8	24	*b*	*b*	2	75
Washington	11	50	5	22	2	14	4	32
Oregon	5	*c*	8	36	*b*	*b*	*b*	*b*
California	2	*c*	6	61	*b*	*b*	*b*	*b*

(*a*) Period of consumption, Nov. 1.-Dec. 31,1922. (*b*) No data. (*c*) Less than one-tenth of 1 days' supply.

PER CENT OF CHANGE IN TONS OF COAL ON HAND AT CERTAIN PLANTS ON JAN. 1, 1923, COMPARED WITH WHAT IDENTICAL PLANTS HAD IN THE PAST.

(Includes only plants for which stock data were available on each of the dates shown.)

State	Industries Other Than Steel and Coke: No. of Identical Plants	Per Cent of Change Jan. 1, 1923 As Compared with *a*: Nov. 1, 1922	Jan. 1, 1922	Jan. 1, 1921	Jan. 1, 1919	Retail Coal Dealers Bituminous: No. of Identical Plants	Per Cent of Change Jan. 1, 1923 As Compared with *a*: Nov. 1, 1922	Jan. 1, 1922	Jan. 1, 1921	Jan. 1, 1919
Total U. S.	1,871	+1	—6	—26	—43	847	—13	—28	—18	—35
Maine	22	—14	—33	—47	—63	10	—30	+45	—16	—25
New Hampshire	29	—25	—36	—60	—69	12	—45	+62	—31	+10
Vermont	35	—18	—3	—36	—50	5	—4	—12	—35	—24
Massachusetts	223	—22	—28	—51	—62	54	—32	+17	—28	—28
Connecticut	59	+4	—2	—25	—35	26	—42	—20	—12	—26
Rhode Island	47	—14	—8	—37	—57	13	—50	+122	—42	—45
Total—New England	415	—14	—21	—44	—57	120	—34	+21	—24	—27
New York	116	+11	—18	—28	—85	30	+10	+44	+2	+21
New Jersey	84	—7	—20	—43	—55	13	—38	—22	—35	—33
Pennsylvania	102	*b*	+9	+1	—8	36	—1	+9	—2	+36
Maryland	29	—15	—13	—48	—62	12	—54	—4	—24	—54
Delaware	15	—44	+1	—49	—66	5	—69	—8	—75	—70
Dist. of Col.	6	+35	+6	+18	+126	4	—9	—24	—70	+1
West Virginia	31	—2	+12	—3	—32	7	+122	—17	+33	+147
Ohio	106	+9	+7	—11	—43	49	+13	—64	—42	—60
Indiana	91	+11	+5	+3	—9	90	—6	—57	—33	—64
Illinois	110	+20	+2	—27	—51	70	—7	—14	—12	—33
Michigan										
No. Peninsula	15	+3	—24	—26	—65	4	—32	—16	—21	—45
So. Peninsula	84	+24	+20	—9	—5	48	—4	—52	+8	—65
Wisconsin	73	+8	+1	—37	—41	28	+15	—33	—7	—38
Minnesota	53	—17	—25	—44	—28	8	—23	+34	—8	+3
Iowa	25	—15	+29	—10	—39	64	—12	—29	—21	—44
North Dakota	6	+3	+15	—18	—44	6	—14	+97	—23	+84
South Dakato	2	+156	—25	—8	—68	4	—22	—48	—8	—30
Nebraska	7	—16	—40	—52	—67	11	—8	—9	—1	—30
Virginia	25	—10	+9	—25	—18	12	—30	—82	—76	—82
North Carolina	34	—23	—38	—38	—46	8	—24	—47	—13	—37
South Carolina	32	—36	—37	—29	—54	11	—36	—68	—39	—61
Georgia	23	+7	+15	+5	—4	14	+16	—24	+35	—1
Florida	6	—11	—36	—54	—64	2	—44	—75	—83	—77
Kentucky	24	+18	+25	—7	—26	39	+4	—61	—38	—58
Tennessee	53	—9	—10	—34	—28	20	+15	—61	—1	—37
Alabama	29	—3	—22	—57	—66	23	—27	—76	*b*	+175
Mississippi	19	—15	—33	—55	—69	11	—7	—5	*b*	—16
Missouri	60	+10	+5	—38	—51	31	+33	—26	+3	—37
Kansas	32	+23	*b*	—11	—35	4	+36	—36	+20	+313
Oklahoma	17	+22	+11	—30	—47	3	+6	—29	+10	—14
Arkansas	17	—1	—53	—62	—63	3	+*b*	—24	—43	—3
Louisiana	—	—	—	—	—	5	+3	—53	—39	+110
Texas	29	+24	+272	+56	+123	1	+75	+120	—30	—57
Colorado	25	—10	—3	—19	—37	8	—1	+40	+70	+31
New Mexico	3	+111	+12	—63	—72	7	+27	—3	+41	+48
Arizona	5	+5	+68	—9	+215	4	+2	+73	+54	+278
Utah	16	+38	+6	—28	—48	5	+29	—64	—38	—23
Nevada	5	—22	+2,089	+10	—66	5	+13	—19	—46	+50
Wyoming	3	*c*	*c*	*c*	*c*	3	+0	+446	—29	+58
Montana	13	+8	+8	—2	—16	3	+62	+71	+35	+209
Idaho	14	—7	—27	—36	*b*	5	—18	—25	—27	+255
Washington	10	+2	—14	—47	—7	1	—18	+64	+62	+59
Oregon	3	—100	—53	—68	—54	7	—30	—8	—46	—3
California	4	—40	—87	—85	—72	3	+10	+57	—43	—51

(*a*) A plus sign denotes an increase; a minus sign, a decrease.
(*b*) Less than 1 per cent.
(*c*) No stocks on hand December 31, 1922.

territory east of the Mississippi. Reports were received from 2,265 industrial plants. Coal for steamship fuel, on Lake docks and in transit is not included in the Geological Survey's report.

DAYS' SUPPLY OF ANTHRACITE AT 583 RETAIL COAL YARDS JAN. 1, 1923, AND PER CENT OF CHANGE IN 516 YARDS

State	Days' Supply All Dealers Reporting a: No. of Dealers Reporting	Days' Supply Jan. 1, 1923	Change in Tons Identical Dealers b Per Cent of Change January 1, 1923, As Compared With: No. of Identical Dealers	Nov. 1, 1922	Jan. 1, 1922	Jan. 1, 1921	Jan. 1, 1919
Total United States	583	10	516	+1	—70	—41	—54
Maine	9	16	8	+8	—51	+150	+113
New Hampshire	12	9	12	—40	—86	—70	—65
Vermont	7	6	6	+6	—89	—83	—86
Massachusetts	56	13	54	—5	—78	—35	—62
Connecticut	27	12	27	—13	—80	—56	—75
Rhode Island	13	12	13	—24	—87	—40	—82
Total New England	124	13	120	—8	—79	—40	—67
New York	32	7	29	+13	—54	—5	+4
New Jersey	18	6	14	—39	—76	—52	—67
Pennsylvania	40	20	27	—1	—51	—46	—47
Maryland	8	1	12	—46	—94	—91	—89
Delaware	7	7	5	—18	—78	—9	—62
District of Columbia	11	8	4	—7	—72	—57	—39
West Virginia	4	43	—	—	—	—	—
Ohio	33	9	34	—31	—83	—61	—48
Indiana	63	3	65	—61	—96	—85	—95
Illinois	69	11	61	+69	—73	—46	—36
Michigan							
No. Peninsula	5	30	4	+301	—53	—54	—59
So. Peninsula	51	5	45	—30	—94	—85	—87
Wisconsin	35	18	28	+21	—67	—18	—38
Minnesota	9	25	8	+36	—34	—38	—31
Iowa	46	17	39	—13	—30	—37	—40
North Dakota	6	26	5	+4	+8	—54	—44
South Dakota	4	12	4	+54	—67	—70	—38
Nebraska	7	51	5	+1	—27	—67	—51
Virginia	11	6	7	+121	—97	—95	—84

(a) Figures represent number of days' stock would last at current rate of delivery to consumers, namely that in November and December, 1922.
(b) Includes only dealers from whom reports were available for each of the dates shown.

Union Completes Official Count of Votes In International Election

John L. Lewis received 193,824 votes for president of the United Mine Workers of America in the election held Dec. 12, according to the official count, completed Feb. 2. Philip Murray, of Pennsylvania, received 187,659 for vice-president, and William Green, of Ohio, 189,697 for secretary-treasurer. All three international officers were re-elected without opposition.

Besides these three, the following were chosen to represent the miners in the convention of the American Federation of Labor: Frank Farrington, Illinois; Thomas Kennedy, Pennsylvania; Fred Mooney, West Virginia, and John Moore, and Lee Hall, Ohio.

Northwestern Dock Operators' Association Engages Wayne Ellis as Secretary

Wayne Ellis has been selected for the secretaryship of the Northwestern Dock Operators' Association. He was selected for this important position because the dock operators are convinced that he has as thorough knowledge of coal distribution as is possessed by any coal specialist in the country. The appointment became effective Feb. 5, but Mr. Ellis was not able to undertake his duties on that date, due to the necessity of concluding some of the work he has under way for the President's Coal Commission.

THE ANACONDA COPPER MINING CO. contends that the tentative report of the Interstate Commerce Commission's examiner in the Western Coal Rate case is in error in failing to recommend that these rates be reduced.

Refuse Anthracite Data to District of Columbia Utilities Commission

Efforts of the Public Utilities Commission of Washington, D. C., to find out how much hard coal dealers in the capital are receiving from the Philadelphia & Reading Coal & Iron Co. and how those receipts compare with last winter's shipments have been without result so far. The commission sought this information after some local coal merchants had complained that they were not getting their proper proportion of the anthracite shipped by the P. & R.

The commission states that it asked that company for the desired information to verify the complaints, but that "this request was not complied with either by the main office of the company or by its local representative, and the commission, accordingly, asked the assistance of the Federal Fuel Distributor in securing the desired information."

The reply received by Engineer Commissioner Keller from Federal Fuel Distributor F. R. Wadleigh quoted a letter from Mr. Parker, director of anthracite distribution, as follows:

"'The information requested by Colonel Keller, District Commissioner, is of strictly confidential character, which the anthracite companies have always definitely declined to furnish to anyone, and while I should like to be of service to Colonel Keller or to any other official who is assisting in the solution of the problems we have facing us, I regret that I cannot convey his request to the Philadelphia & Reading Coal & Iron Co. for a statement as to the shipments made to various dealers in the District of Columbia during the coal years of 1921-22 and 1922-23.

"'If there is any part of the city or the District that has failed to get its proper proportion of the tonnage available through the failure of any particular dealers or dealers to get his or their supply, and I am advised to that effect, I will be glad to put the matter up to the Philadelphia & Reading Coal & Iron Co. or other shippers, but that is as far as I feel I can go in the matter.'"

Ogle Commends Commission Study of Relative Labor Efficiency and Storage

Alfred M. Ogle, president of the National Coal Association, expressed great satisfaction on learning that the President's Coal Commission will make it a special point to ascertain the relative efficiency of union and non-union labor. This and the study the commission is making of storage offer particular possibilities for being constructive and helpful to the industry, he said. He believes, as the investigation of the storage situation progresses, the commission will find that storage at the mine mouth is impracticable, except at very small mines. The principal disadvantage of storing at the mine mouth lies in the inability of the railroads to furnish sufficient transportation to move such coal in storage during times when the consuming public requires it.

"It seems an unnecessary expenditure of money," Mr. Ogle says, "to buy more coal cars under conditions as they exist today on the railroads. The trouble at the present time is with motive power and inadequate yard and terminal facilities. There are certain bottle necks on some of the most important coal roads which limit and disrupt the distribution of coal."

Mr. Ogle called attention to the fact that many of the statements made by the Coal Commission in its Jan. 15 report are being misinterpreted in the daily press. For instance, it is being published widely that the commission has found profiteering to be one of the causes of high coal prices, when as a matter of fact the commission's report states that "it has been suggested to us that one of the causes of high prices of coal is profiteering." In the next paragraph the commission goes on to point out that it has not yet obtained the figures to settle the question.

He fails to see where overdevelopment can be attributed as a cause for high prices. Excessive production is commonly supposed to be a factor in depressing prices. In Mr. Ogle's opinion, there would be no difficulty at any time, despite transportation drawbacks, in furnishing the country

its full requirements of coal, were it not for the interruptions in production and distribution by recurring strikes.

With all their other difficulties, Mr. Ogle feels that the operators should be spared the burdens heaped on them by unfair attacks from such responsible agencies as the Associated Press and the U. S. Department of Labor. On the eve of the wage agreement in New York, he states, the Associated Press carried an article which was an undeserved reflection on the operators. He feels that one of the recent radio releases of the Department of Labor is a most unjustifiable and indefensible attack on the entire coal industry. In addition, he believes that release can be regarded only as a serious discourtesy to the President's Coal Commission.

May Be Necessary to Extend Life of Coal Commission to Dec. 31, Says Hammond

As there has been delay in obtaining the legislation to compel swearing to answers to questionnaires, it may be necessary to extend the life of the President's Coal Commission until Dec. 31, Chairman Hammond intimates in a letter written to the Director of the Budget. The full text of the letter follows:

"The appropriation for the U. S. Coal Commission is in the following language:

> To carry out the provisions of the act entitled "An act to establish a commission to be known as the U. S. Coal Commission for the purpose of securing information in connection with questions relative to interstate commerce in coal, and for other purposes," including personal services in the District of Columbia and elsewhere, and rent if space can not be assigned by the Public Buildings Commission in other buildings under the control of that commission, fiscal year 1923, $200,000: *Provided*, That no part of this sum shall be available for the payment of compensation of any person in excess of $7,500 per annum.

"To continue this work after June 30 and on the scale required by the terms of the act of Sept. 22 necessitates the submission of the following supplemental estimate:

> To continue and conclude the investigation under the act entitled "An act to establish a commission to be known as the U. S. Coal Commission for the purpose of securing information in connection with questions relative to interstate commerce in coal, and for other purposes," including personal services in the District of Columbia and elsewhere, $400,000, to continue available for expenditure until Sept. 22, 1923, or until Dec. 31, 1923, provided the President, if he deems the continuance of the work of the commission essential to the public interest, may, by Executive order, continue the commission in force to a date not later than Dec. 31, 1923.

"The expenditures to date with all liabilities and salary encumbrances to June 30 do not exceed the amount appropriated, so that no deficit has been incurred nor need be anticipated if Congress desires only incomplete consideration of the subjects submitted to the commission for investigation.

"It is, however, quite manifest that the commission will not have discharged its duty to the Congress and the people of the United States by a report to the Congress touching certain phases of the industry and not covering the industry as a whole. To be of any use whatever, it must submit what it believes to be the truth about production, distribution, and consumption of coal, embracing, as these questions of cost and price necessarily do, the overhead charges, the income upon the investment, whether properly or improperly computed, the earnings of miners, not by averages but by classes, the problem of overdevelopment of mines and overmanning of the industry, the contracts which are entered into for the sale of the coal, the activities of wholesalers and jobbers, the transportation question in all of its ramifications, the retailing of the coal and the profits derived by the retailer and whether such profits are computed upon improper bases or not.

"There are approximately 9,000 mines involved in the inquiry. To avoid extravagant expenditure of the public funds by the indiscriminate subpoenaing of witnesses from these mines to appear before the commission, it has adopted the policy of having prepared by skilled persons certain questionnaires to be sent out in the first instance. When these have been returned, the commission will be enabled to determine upon what points it should take oral testimony to satisfy itself not only that the figures are correct but also that they are made upon bases fair and just to the American people. It is also quite evident that the controversy arising from what is known as the civil rights of American citizens into a controversy between the non-union mines and those which are operated by the United Mine Workers of America involves a painstaking hearing on the alleged facts presented by each side of the controversy.

"The Congress of the United States has also asked a report as to the conditions of life in the coal-mining communities of this country. This necessitates the sending of skilled social students into the various mining districts of America in order that they may present to the commission a view of the conditions of life in the various mining districts of our country. In the usual and ordinary way for obtaining facts, millions of dollars might be spent in the way of taking a transcribed testimony, and volume after volume might be filled with this testimony, but when so obtained it would require a technical student to pick out and separate the important facts from the mass of irrelevant matter. This commission has adopted the other plan, the one briefly described above, of endeavoring to obtain all undisputed facts through the medium of questionnaires and undisputed public documents.

"It is evident that with an additional appropriation of $400,000 it can complete the survey by its trained workers, can eliminate from taking of testimony all undisputed facts, and can compress within reasonable bounds the testimony necessary to reach measurably accurate conclusions upon the facts in controversy.

"This commission is not inclined to sit for the purpose of sitting. It does not care to waste time. It seeks to make the record of a commission which recognizes its duty to end its work as speedily as possible.

"However, the commission has not yet the power to compel swearing to answers to questionnaires for which it asked Congress. Notwithstanding delays beyond its control, the commission's purpose and hope are to conclude its labors by the 22d day of September, the time fixed in the original act. It, therefore, requests that the President of the United States may be empowered, if he deems it essential to the public interest, to continue the work of the commission to Dec. 31, 1923, and in that event the appropriation here sought shall continue to be available until that time."

"Danger of Coal Panic Past," Says Hoover

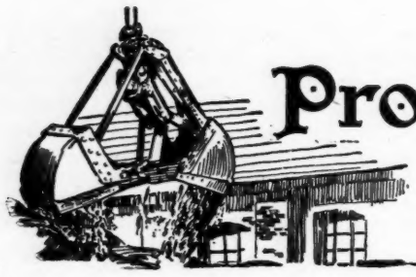
Under the caption, "Danger of Coal Panic Past," the leading editorial in the Feb. 5 issue of United States Weekly Commerce Reports, published by the Department of Commerce, which is reported to have been written by Secretary Hoover himself, descants on the bituminous coal situation as follows:

"The United States appears to have effectually passed the point where there is any danger of a coal panic as the result of short coal deliveries. The stoppage in coal production for nearly five and one-half months during the summer of 1922 threw a great burden upon the government in securing such distribution of coal as would maintain the industries and commerce of the country intact.

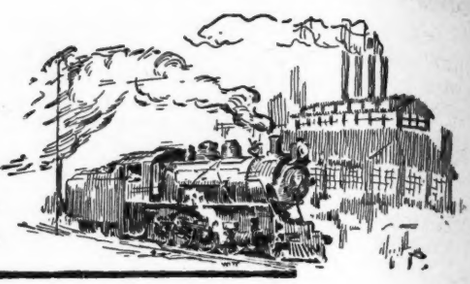
"Although approximately 60 per cent of the country's bituminous mines were closed during the period of the strike, the campaign carried on by the Department of Commerce prior to the coal strike in securing the upbuilding of national stocks to the unprecedented sum of nearly 85,000 000 tons, together with the measures taken for control of distribution subsequent to the strike, have enabled us to weather the difficulties successfully.

"The price of spot bituminous coal at the mines has averaged $4.16 per ton since the beginning of the strike on April 1, 1922. This compares favorably with an average of $5.64 per ton for spot coal for the year 1920, when there was no stoppage of production and when the output was less than 2 per cent below the maximum of any previous year. During the year 1922 we have had to face both a shortage of transportation and a tremendous stoppage of production, yet there has been less crippling of industry, with respect to both coal distribution and price, than on the previous occasion.

"The signing of the new wage agreement and its effect on labor afford a safeguard against any further stoppage in production for another year, and the stability that will thus be created will contribute materially to a renewal of competitive conditions."



Production and the Market



Weekly Review

The sharp drop in prices of soft coal, in view of the continued steady output of 11,000,000 tons per week, is the best indication of what is happening to the spot market. The buyer is gradually getting the better of it. *Coal Age* Index of spot prices of bituminous coal dropped 30 points in a week, from 342 on Jan. 29 to 312 on Feb. 5, corresponding to an average price on Feb. 5 of $3.78.

The most pronounced declines were in eastern Kentucky, Kanawha and Clearfield, where the drop was around 50c., and Cambria and Somerset and Smokeless, the low volatiles, of from 60c. to 80c. Buyers are clinging to the spot market and display no anxiety whatsoever.

The renewal of the wage agreements in the Pittsburgh and central Pennsylvania districts was to be expected following the signing of the agreement between the operators from Illinois, Indiana and eastern Ohio, and had no effect on the situation. With spring nearly here and assurances that there will be no serious labor disturbances, consumers have no apprehension. They are not anxious to buy more coal than they really need but are willing to pick up bargains.

Consumers Not Anxious to Make Contracts.

Nor are consumers ready to make contracts for the year beginning April 1. Many tentative figures have been heard at which operators are willing to sign up for a year's supply, but few contracts have been closed.

Car supply continues poor in most sections of the country. Because of continued embargoes via the Hudson River gateway the all-rail route to New England is effectually closed. Pennsylvania operators are under heavy pressure to place within much restricted territory what they can produce even under present conditions of car supply. Practically all bituminous coal for commercial purposes is excluded by certain of the railroads from the all-rail route. As a result the restrictions on shipments into New England were reflected in the receipts at the New York terminals.

Lack of cars and cold snaps in various sections of the country were the factors that kept prices from a lower level. Mines in most instances did not work more than half time and weather conditions were not such as to result in heavy consumption of coal.

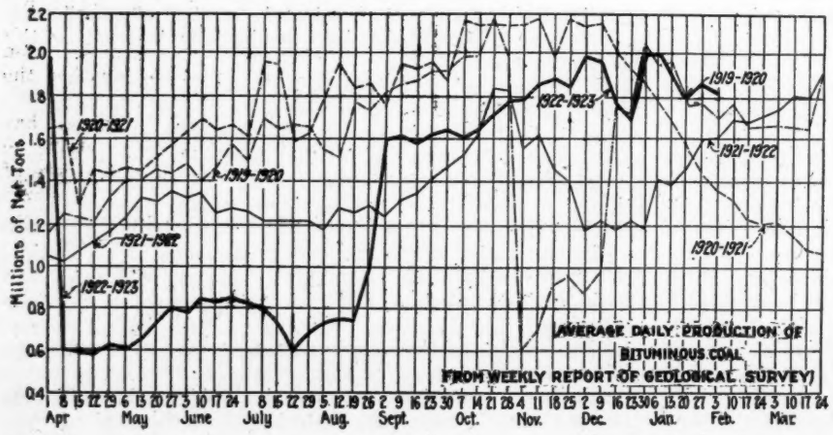
The trade was interested in bids opened by the United States Shipping Board at New York on Jan. 29 for furnishing about 8,000 gross tons of coal alongside vessels in that harbor. The prices submitted ranged $7.33 @$9.10 for three months delivery and $7.20@$8.74 for six months delivery, the coal to be the equal of Pools 1, 9 and 71. Later in the week the bids were rejected on the ground that the prices were too high. It has not been announced whether the bids would be re-advertised.

Anthracite production continues at around 2,000,000 net tons per week. Already dealers located from three to four weeks from the point of loading are said to be cancelling orders where placed with the smaller producers quoting high prices. Producers are watching the progress of the coal-grading bill introduced in the Pennsylvania State Senate, making it unlawful to misrepresent the grade of coal sold or offered or advertised for sale. The bill covers anthracite, bituminous, semi-bituminous and all other grades of coal.

Senator Walsh of Massachusetts, who has advocated the cutting off of shipments of anthracite to Canada, has sent to the U. S. Senate a communication complaining of bad preparation and also has introduced a bill establishing standards for anthracite shipped in interstate commerce.

Production of coke is limited by the car supply. A shortage of labor now and then at various works makes it possible to give the other workers nearly full employment. Demand for coke for heating purposes continues strong.

"The rate of production of soft coal has been station-



Estimates of Production

(Net Tons)

	1922	1923
BITUMINOUS		
Jan. 13	8,302,000	11,217,000
Jan. 20 (*b*)	8,782,000	10,925,000
Jan. 27 (*a*)	9,615,000	11,160,000
Daily average	1,603,000	1,860,000
Calendar year	34,175,000	44,250,000
Daily av. cal. year	1,266,000	1,639,000
ANTHRACITE		
Jan. 13	1,643,000	2,113,000
Jan. 20	1,443,000	2,010,000
Jan. 27	1,607,000	2,119,000
Calendar year	6,447,000	7,967,000
COKE		
Jan. 20 (*b*)	115,000	328,000
Jan. 27 (*a*)	113,000	346,000
Calendar year	455,000	1,307,000

(*a*) Subject to revision. (*b*) Revised from last report.

ary at about 11,000,000 net tons a week during the past four weeks," says the Geological Survey. "First estimates for the week ended Jan. 27 place the total, including mine fuel, coal coked at the mines, and local sales in addition to shipments, at 11,160,000 net tons, which is a small increase as compared with the revised estimate, 10,925,000 tons, for the week preceding.

"Preliminary reports of cars loaded during the present week (Jan. 29-Feb. 3) show 42,659 cars on Monday and a decline to 29,218 cars on Thursday. Thus the indicated total output for the present week is between 1 and 2 per cent less than for the week preceding and will be about 10,900,000 to 11,000,000 tons."

Midwest Is Uneasy

Short car supply together with a cold snap which swept down out of the Northwest at the end of last week were the two factors which staved off the long-imminent market collapse. Most Indiana and Illinois fields worked something less than half the time, which was quite enough to balance the demand. The general expectation was that the cold would continue less than a week, so there was nothing resembling a rush to market for coal. Instead, dealers everywhere kept up their clamor for further price reductions.

Indiana producers shaded their lists 25c. or 50c. at the middle of the week, dropping Fourth Vein lump back to $4.25@$4.50 and Sixth Vein to $4.50@$4.75. Central Illinois lump could hardly maintain a level of $3.75. Some sold down to $3.50. In each case there were more cars than were needed, even at 50 to 60 per cent supply. Southern Illinois association operators did not give up their $5.50 price for lump and egg, however.

A feature of the domestic market in Chicago was the dropping of the retail price of Pocahontas mine-run from $11.50 to $10 by a dealer big enough to upset the market. At once there was a general stirring about followed by a tendency on the part of the mine price to drop from $4.75@$5 down to at least as low as $4.50. A good deal of this Eastern coal is reaching Chicago just now.

Steam demand continued light, but the small volume of steam coals available kept the price from sinking much. In the case of one or two coals it even rose a faint shade. Fourth Vein screenings attained $2.50 as a top. Nobody anticipated any general rise of small sizes, but screenings are expected to hold their own for a while. No stocking is noticeable on the part of any big consumer. Buying is on a day-to-day basis.

This day-to-day tendency is most obvious in St. Louis, where few dealers stock heavily, since coal fields are so close at hand. That market has been taking light tonnages for

Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F.O.B. Mines

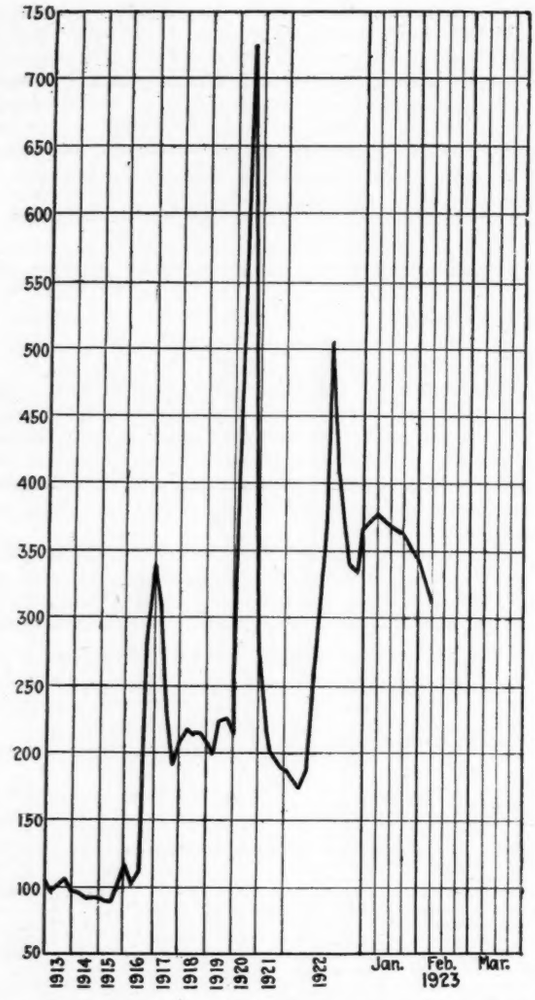
	Market Quoted	Feb. 6 1922	Jan. 22 1923	Jan. 29 1923	Feb. 5 1923†
Low-Volatile, Eastern					
Smokeless lump	Columbus	$3.25	$7.25	$7.25	*$6.50@$7.00*
Smkkeless mine run	Columbus	2.15	6.60	6.65	*5.00@ 6.00*
Smokeless screenings	Columbus	1.30	6.00	5.85	*5.00@ 6.00*
Smokeless lump	Chicago	3.00	7.75	7.75	7.50@ 8.00
Smokeless mine run	Chicago	2.00	6.35	6.10	*4.75@ 5.00*
Smokeless lump	Cincinnati	3.15	7.50	7.25	*6.00@ 7.00*
Smokeless mine run	Cincinnati	1.85	6.00	6.00	*4.50@ 6.00*
Smokeless screenings	Cincinnati	1.20	6.00	6.00	*4.50@ 6.00*
*Smokeless mine run	Boston	4.70	8.75	8.10	*7.75@ 8.25*
Clearfield mine run	Boston	1.95	4.75	4.35	*3.50@ 4.25*
Cambria mine run	Boston	2.45	5.25	4.85	*3.75@ 4.60*
Somerset mine run	Boston	1.90	5.00	4.55	*3.60@ 4.25*
Pool 1 (Navy Standard)	New York	2.85	5.75	5.50	*5.00@ 5.75*
Pool 1 (Navy Standard)	Philadelphia	3.05	5.75	5.45	5.25@ 5.70
Pool 1 (Navy Standard)	Baltimore	2.55	5.50	5.10	*4.50@ 4.75*
Pool 9 (Super. Low Vol.)	New York	2.35	5.25	5.00	*4.50@ 5.00*
Pool 9 (Super. Low Vol.)	Philadelphia	2.45	5.55	4.80	4.60@ 5.00
Pool 9 (Super. Low Vol.)	Baltimore	2.20	5.10	4.85	*4.25@ 4.50*
Pool 10 (H.Gr.Low Vol.)	New York	2.05	4.50	4.25	*3.75@ 4.50*
Pool 10 (H.Gr.Low Vol.)	Philadelphia	2.10	5.20	4.30	4.15@ 4.50
Pool 10 (H.Gr.Low Vol.)	Baltimore	2.00	4.35	4.10	*4.00@ 4.25*
Pool 11 (Low Vol.)	New York	1.75	3.35	3.50	3.25@ 3.75
Pool 11 (Low Vol.)	Philadelphia	1.75	4.20	3.25	3.15@ 3.35
Pool 11 (Low Vol.)	Baltimore	1.85	3.75	3.35	3.25@ 3.50
High-Volatile, Eastern					
Pool 54-64 (Gas and St.)	New York	1.50	3.35	3.10	3.00@ 3.25
Pool 54-64 (Gas and St.)	Philadelphia	1.50	3.65	3.25	*3.00@ 3.30*
Pool 54-64 (Gas and St.)	Baltimore	1.45	3.25	3.10	*3.00*
Pittsburgh se'd gas	Pittsburgh	2.65	5.35	4.85	*4.50*
Pittsburgh mine run (St.)	Pittsburgh	2.15	3.50	3.35	*3.00@ 3.25*
Pittsburgh slack (Gas)	Pittsburgh	1.65	3.40	3.35	*3.25@ 3.40*
Kanawha lump	Columbus	2.65	6.25	5.25	5.00@ 5.50
Kanawha mine run	Columbus	1.65	3.35	3.25	*3.00@ 3.35*
Kanawha screenings	Columbus	1.30	3.10	3.10	*2.75@ 3.00*
W. Va. lump	Cincinnati	2.55	6.00	6.10	*4.00@ 5.25*
W. Va. Gas mine run	Cincinnati	2.25	3.50	3.45	*2.50@ 3.00*
W. Va. Steam mine run	Cincinnati	1.45	3.05	3.25	*2.50@ 3.00*
W. Va. screenings	Cincinnati	1.10	3.00	3.25	*2.25*
Hocking lump	Columbus	2.65	5.10	4.60	*4.00@ 5.00*
Hocking mine run	Columbus	1.75	2.85	2.80	2.65@ 3.00
Hocking screenings	Columbus	1.35	2.60	2.60	2.50@ 2.75
Pitts. No. 8 lump	Cleveland	3.00	5.10	4.35	.....
Pitts. No. 8 mine run	Cleveland	$2.00	$3.60	$3.40	.....
Pitts. No. 8 screenings	Cleveland	1.70	3.25	3.25	.....
Midwest					
Franklin, Ill. lump	Chicago	3.65	5.35	5.35	$5.25@$5.50
Franklin, Ill. mine run	Chicago	2.35	3.85	3.85	3.75@ 4.00
Franklin, Ill. screenings	Chicago	2.00	2.65	2.65	*2.50@ 2.75*
Central, Ill. lump	Chicago	3.00	4.10	3.85	*3.50@ 3.75*
Central, Ill. mine run	Chicago	2.35	2.85	2.85	*2.75@ 3.00*
Central, Ill. screenings	Chicago	1.65	1.70	1.60	*1.50@ 1.75*
Ind. 4th Vein lump	Chicago	3.25	4.85	4.85	*4.25@ 4.50*
Ind. 4th Vein mine run	Chicago	2.50	3.60	3.60	*3.00@ 3.25*
Ind. 4th Vein screenings	Chicago	1.85	2.30	2.30	2.25@ 2.40
Ind. 5th Vein lump	Chicago	2.95	4.10	4.10	4.00@ 4.25
Ind. 5th Vein mine run	Chicago	2.25	3.10	3.10	3.00@ 3.25
Ind. 5th Vein screenings	Chicago	1.55	1.80	1.80	1.75@ 1.85
Standard lump	St. Louis	2.90	4.10	3.60	*3.00@ 3.25*
Standard mine run	St. Louis	1.90	2.60	2.50	*2.25*
Standard screenings	St. Louis	1.00	1.85	1.60	*1.40@ 1.50*
West Ky. lump	Louisville	2.60	4.10	4.00	*3.50@ 4.25*
West Ky. mine run	Louisville	1.90	2.60	2.50	*2.25@ 2.50*
West Ky. screenings	Louisville	1.15	2.30	2.00	*1.80@ 2.00*
West Ky. lump	Chicago	....	4.25	4.25	*3.75@ 4.00*
West Ky. mine run	Chicago	....	1.85	2.35	2.25@ 2.50
South and Southwest					
Big Seam lump	Birmingham	2.90	3.95	3.95	3.50@ 4.45
Big Seam mine run	Birmingham	1.85	2.35	2.35	2.25@ 2.50
Big Seam (washed)	Birmingham	2.10	2.60	2.60	2.50@ 2.75
S. E. Ky. lump	Chicago	....	6.25	6.00	5.75@ 6.25
S. E. Ky. mine run	Chicago	....	3.25	3.25	3.00@ 3.50
S. E. Ky. lump	Louisville	2.90	6.50	6.50	*5.00@ 6.50*
S. E. Ky. mine run	Louisville	1.45	3.10	3.10	**3.00@ 3.50**
S. E. Ky. screenings	Louisville	1.15	3.25	3.00	*2.75@ 3.00*
S. E. Ky. lump	Cincinnati	2.90	5.60	5.60	*3.75@ 5.00*
S. E. Ky. mine run	Cincinnati	1.45	3.35	3.15	*2.50@ 3.00*
S. E. Ky. screenings	Cincinnati	0.85	3.00	2.85	*2.00@ 2.50*
Kansas lump	Kansas City	5.00	5.50	5.50	5.50
Kansas mine run	Kansas City	4.00	3.60	3.60	3.50@ 3.75
Kansas screenings	Kansas City	2.50	2.50	2.50	2.50

* Gross tons, f.o.b. vessel, Hampton Roads.
† Advances over previous week shown in **heavy type**, declines in *italics*.

Current Quotations—Spot Prices, Anthracite—Gross Tons, F.O.B. Mines

	Market Quoted	Freight Rates	Latest Pre-Strike Independent	Latest Pre-Strike Company	Jan. 29, 1923 Independent	Jan. 29, 1923 Company	Feb. 5, 1923† Independent	Feb. 5, 1923† Company
Broken	New York	$2.34	.....	$7.60@$7.75	$9.00	$7.75@$8.25	$9.00	$7.75@$8.25
Broken	Philadelphia	2.39	$7.00@$7.50	7.75@ 7.85	.....	7.90@ 8.10	.....	7.90@ 8.10
Egg	New York	2.34	7.60@ 7.75	7.60@ 7.85	9.25@12.00	8.00@ 8.35	9.25@12.00	8.00@ 8.35
Egg	Philadelphia	2.39	7.25@ 7.75	7.75	9.25@11.00	8.10@ 8.35	9.25@11.00	8.10@ 8.35
Egg	Chicago*	5.09	7.50	8.25	12.00@12.50	7.20@ 8.25	12.00@12.50	7.20@ 8.25
Stove	New York	2.34	7.90@ 8.20	7.90@ 8.10	9.25@12.00	8.00@ 8.35	9.25@12.00	8.00@ 8.35
Stove	Philadelphia	2.39	7.85@ 8.10	8.05@ 8.25	9.25@11.00	8.15@ 8.35	9.25@11.00	8.15@ 8.35
Stove	Chicago*	5.09	7.75	8.25	12.00@12.50	7.35@ 8.25	12.00@12.50	7.35@ 8.25
Chestnut	New York	2.34	7.90@ 8.20	7.90@ 8.10	9.25@12.00	8.00@ 8.35	9.25@12.00	8.00@ 8.35
Chestnut	Philadelphia	2.39	7.85@ 8.10	8.05@ 8.25	9.25@11.00	8.15@ 8.35	9.25@11.00	8.15@ 8.35
Chestnut	Chicago*	5.09	7.75	8.25	12.00@12.50	7.35@ 8.35	12.00@12.50	7.35@ 8.35
Range	New York	2.34	.....	.....	.....	8.25	.....	8.25
Pea	New York	2.22	5.00@ 5.75	5.75@ 6.45	7.50@11.00	6.15@ 6.30	7.50@11.00	6.15@ 6.30
Pea	Philadelphia	2.14	5.50@ 6.00	6.10@ 6.25	7.00@ 9.50	6.15@ 6.20	7.00@ 9.50	6.15@ 6.20
Pea	Chicago*	4.79	6.00	6.25	7.00@ 8.00	5.49@ 6.03	7.00@ 8.00	5.49@ 6.03
Buckwheat No. 1	New York	2.22	2.75@ 3.00	3.50	5.25@ 6.00	4.00@ 4.10	5.25@ 6.00	4.00@ 4.10
Buckwheat No. 1	Philadelphia	2.14	2.75@ 3.25	3.50	5.00@ 5.50	4.00	5.00@ 5.50	4.00
Rice	New York	2.22	2.00@ 2.50	2.50	2.25@ 2.75	2.75@ 3.00	2.25@ 2.75	2.75@ 3.00
Rice	Philadelphia	2.14	2.00@ 2.50	2.50	2.75@ 3.00	2.75@ 3.00	2.75@ 3.00	2.75@ 3.00
Barley	New York	2.22	1.50@ 1.85	1.50	1.50@ 2.00	1.50@ 2.00	1.50@ 2.00	1.50@ 2.00
Barley	Philadelphia	2.14	1.50@ 1.75	1.50	1.50@ 2.00	2.00	1.50@ 2.00	2.00
Birdseye	New York	2.22	.....	2.00@ 2.50	.....	2.10	.....	2.10

* Net tons, f.o.b. mines. † Advances over previous week shown in **heavy type**, declines in *italics*.



Coal Age Index 312, Week of Feb. 5, 1923. Average spot price for same period, $3.78. This diagram shows the relative, not the actual prices on fourteen coals, representative of nearly 90 per cent of the bituminous output of the U. S. weighed in accordance first with respect to the proportions each of slack, prepared tonnage of each normally produced. The average thus obtained was compared with the average for the twelve months ended June, 1914, as 100, after the manner adopted in the report on "Prices of Coal and Coke, 1913, 1918," published by the Geological Survey and the War Industries Board.

both steam and domestic use during the past few days, but country domestic trade near there has strengthened. As usual, the cheaper coals are most in demand. Standard 6-in. lump is selling there for $3@$3.25, 2-in. lump as low as $2.65 and screenings for $1.40@$1.50. Mt. Olive lump goes to St. Louis in small volume at $4, while the country trade pays $4.50. Mt. Olive coal is moving Northwest rather than into either St. Louis or Chicago.

Kentucky markets are not suffering particularly. Industrial demand is fair and railroads are taking heavier tonnages than they have been because of an active movement of freights. But it is freely admitted that car supply is the thing that is keeping prices fairly firm. The Louisville & Nashville averages 19 per cent and the Illinois Central 43. A threatened breakdown in transportation before March 15 caused by the constantly increasing volume of freight, finally producing various congestions at terminals and transfer points, may hold the market up.

Most Kentucky observers think the low-market of last spring has a good chance of giving a repeat performance. Last year, when a strike threatened, buyers would not buy because they counted heavily on non-union production from eastern Kentucky and a heavy output from the western end of the state whose union mines had a labor contract running another year. On Feb. 1, 1922, the highest priced block coal in the state brought $2.50@$2.75 as against $6 now; screenings, 80c.@$1.25 as compared with $2 today in western Kentucky and $2.75 in the eastern field.

Steamboat companies are again operating the big packets, and the gas and byproduct people are buying some coal. Movement is general to all districts and fairly well scattered. With no weather under 15 deg. above zero for the season in Louisville, volume as handled by retailers has been small, and orders are mostly one and two-ton lots, according to retailers.

Northwest Trade Is Dull

Nothing disturbed the Northwest's trade during the past week except general dissatisfaction with a good deal of the anthracite which has been delivered. So much bone and dirt comes through with it that the Wisconsin Fuel Commission has complained to Senator David I. Walsh of Massachusettes, hoping that the champion of the "peepul" can bring some more pressure to bear upon shippers in the field.

Trade continues light throughout the whole territory, even though prices on the considerable stocks of bituminous at the Head-of-the-Lakes have been eased down a little to draw buyers. Shipments from Duluth-Superior docks one day last week totaled only five cars, which is phenomenal. Dock men there are trying to unload their bituminous stocks but are not pushing their anthracite strongly except to the local trade. There are 32,000 tons of anthracite on hand. The plan is to increase the usual 10c.-a-ton monthly differential on anthracite during the coming spring and summer to encourage warm weather stocking.

The West Flounders Along

Some colder weather made domestic trade a little snappier in most Western markets, but nothing grew really lively. Fair transportation, almost a test to the producers in Kansas, Oklahoma and Arkansas, was largely responsible for a new cut in Kansas lump from $5.50 to $5, and of Arkansas lump from $7 to $6 and Arkansas nut from $5 to $4.

Near Salt Lake City trade picked up ever so slightly for good lump but egg coal and most steam sizes continued to drag bottom. Utah mines are working something less than half time. In Colorado too much lignite was available for market comfort. Prices fluctuated some as they turned downward.

There was a marked weakness in the Ohio coal trade. There were reductions of 25@50c. per ton on mine prices and the tendency at the end of the week was still downward. Production of lump was larger and added to the trouble of producers in finding a market. Retail dealers and consumers at Columbus are buying only for the present and retail prices are falling in sympathy with mine prices. Receipts from West Virginia and Kentucky are increasing in volume. Railroads are taking a fair tonnage and some coal is being acquired by utilities.

Reports from Cincinnati say that the market is on the downward trend, with high-volatile coals the hardest hit. Offerings of spot New River mine run at $4.75 found no takers. River business shows a heavy increase and preparations are being made for increasing the stock piles along the river front.

Production in West Virginia generally speaking did not average over 40 per cent although there was a slight improvement in car supply. The Western movement was larger, more smokeless going forward as a result of the improved car service.

Coal movement on the Charleston Division of the Baltimore & Ohio R.R. was impeded by several slides.

Production figures for the Pocahontas district of West Virginia for the year 1922, as compiled by the Pocahontas Operators' Association, shows a total of 16,130,974 tons, as compared with 13,043,942 tons in 1921, an increase of 3,087,032 tons. The output for 1922 was the largest since 1916. More coal was loaded during the second quarter than in any similar period; loadings were as follows:

First quarter,	3,796,017 tons	Third quarter,	3,605,227 tons
Second quarter,	5,717,129 tons	Fourth quarter,	3,012,601 tons

During the week the Pittsburgh Coal Producers Association, the Coal Operators of the thick vein Freeport seam, and the Central Pennsylvania Operators Association signed up with the miners, continuing their wage agreement for another year.

There is much complaint of car shortages in the Pittsburgh district, operators claiming that other industries are better treated, also that the Connellsville region is better served.

North Atlantic Market Dull

The market in New England is suffering from a lack of buyers. While anthracite receipts are in no greater volume there is notably less anxiety on the part of householders as the calendar moves forward. Inquiry for substitutes is correspondingly less, and since the average retailer feels the situation is less acute he is less and less inclined to buy spot bituminous. In the larger cities there is enough anthracite available in odd sizes to take care of most cases of real distress and many householders have been able on various representations to accumulate enough to carry them through the present season. This all has a distinct bearing on the market for steam grades, for it is roughly estimated that something like 25 per cent of the bituminous that came forward during December was shipped in anticipation of household needs. With this factor subsiding it is clear that the market probably will ease off gradually until April, when prices will settle down on something like a season basis.

Many of the Pocohontas and New River agencies are discouraged over attempts to force spot coal on unwilling buyers inland from points like Boston, Providence, and Portland. Delays in discharging have resulted in serious losses due partly to car shortage but largely to accumulations far in excess of rehandling facilities. There have been cases where boats have been detained three and four weeks at the discharging piers, and any such hardship on the distributor is enough to preclude further efforts in the same direction. Notwithstanding heavy demurrage items current prices on cars Boston have dropped to less than $10 per gross ton, with coal still pressing for sale.

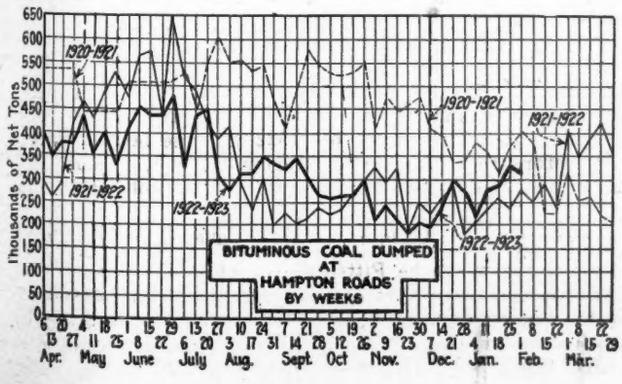
One result is the increased tonnage on wheels at the Hampton Roads terminals. Were there more than scattering demand in this territory we should probably see prices marked off 50@75c. as compared with a week ago, but the volume now actually changing hands is small and what sales there are result from quiet negotiation, with prices hard to follow from day to day. All the shippers have ample coal on hand, even though mining in most cases is less than 50 per cent of normal. There is renewed effort to place coal in the West, now that coastwise prices are less attractive, and contractors are being fed up on their February quotas.

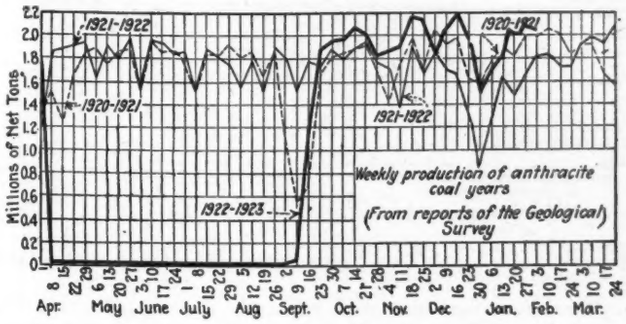
At New York demand is easier and most grades show a lowering in quotations. An occasional cargo of British coal is arriving. A cargo of free Admiralty coal which had arrived there was offered last week at a price higher than domestic coals of good quality could be gotten.

Consumers are not pressing for coal at Philadelphia and are hopeful of lower prices. The railroads seem to be well supplied with fuel and inquiries from this source are few.

Anthracite

The anthracite situation is easier. Demand for the high-priced product of the small operator has fallen off but company coal and the product of the larger independent producers are in strong call. Although there are nearly two months of winter ahead some retail dealers who are located at points where shipments require from three to four





weeks from time of shipment until delivery have cancelled their orders.

The New York State Fuel Administration has received many complaints from consumers of bad preparation of domestic coals and in some instances has ordered the dealer who delivered the coal to either remove or make allowances, at the same time to deliver other coal.

In Baltimore dealers are holding their deliveries strictly to one or two-ton lots but consumers are not able to get the fuel as desired.

"The production of anthracite in the week ended Jan. 27 is estimated at 2,119,000 net tons, including mine fuel, local sales, washery and dredge output," says the Geological Survey. "The nine principal anthracite carriers reported a total of 40,513 cars loaded during that week. When compared with the week preceding this was an increase of about 5 per cent.

"The cumulative production of anthracite for the present coal year (beginning April 1, 1922, to Jan. 27, 1923), stands at 38,675,000 net tons, as against 73,067,000 tons for the same period in the preceding coal year. Thus the present coal year is 24,392,000 net tons, or 47 per cent, behind last year.

"Preliminary reports for the first half of the present week show a slight decline as compared with last week and that the total production will probably be between 2,000,000 and 2,100,000 net tons."

How the Coal Fields Are Working

Percentages of full-time operation of bituminous coal mines, by fields, as reported by the U. S. Geological Survey in Table V of the Weekly Report.

	Jan. 1 to Apr. 1, 1922 Inclusive	Sept. 5 to Dec. 30, 1922 Inclusive	Jan. 1 to Jan. 20, 1923 Inclusive	Week Ended Jan. 20, 1923
U. S. Total	55.7	....	....	....
Alabama	64.6	84.7	90.9	(a)
Somerset County	74.9	36.3	32.0	26.7
Panhandle, W. Va.	51.3	57.3	55.5	53.2
Westmoreland	58.8	65.8	55.1	50.6
Virginia	59.9	55.7	53.7	53.9
Harlan	54.8	22.1	22.0	23.0
Hazard	58.4	16.4	19.3	21.6
Pocahontas	60.0	36.6	36.1	41.1
Tug River	63.7	28.8	34.1	29.6
Logan	61.1	26.2	32.6	34.7
Cumberland-Piedmont	50.6	31.7	42.4	38.4
Winding Gulf	64.3	30.4	34.7	34.3
Kenova-Thacker	54.3	42.4	42.4	43.0
N. E. Kentucky	47.7	28.4	31.1	28.1
New River	37.9	31.6	34.2	38.4
Oklahoma	59.6	59.1	45.6	38.5
Iowa	78.4	75.9	62.9	80.5
Ohio, Eastern	46.6	40.8	34.5	31.5
Missouri	66.8	76.3	82.1	71.2
Illinois	54.5	49.9	56.9	51.3
Kansas	54.9	55.9	58.8	51.0
Indiana	53.8	37.7	54.7	50.5
Pittsburgh†	39.8	41.2	35.5	26.8
Central Pennsylvania	50.2	53.4	44.1	39.2
Fairmont	44.0	35.5	40.4	38.2
Western Kentucky	37.7	32.4	34.4	33.0
Pittsburgh*	31.9	56.1	71.8	68.1
Kanawha	13.0	15.6	19.7	22.8
Ohio, Southern	24.3	38.1	41.4	38.8

* Rail and river mines combined.
† Rail mines.
(a) No report.

Car Loadings, Surplusages and Shortages

	Cars Loaded—All Cars	Cars Loaded—Coal Cars
Week ended Jan. 20, 1923	865,578	192,824
Previous week	873,251	198,686
Same date in 1922	731,109	162,119

	Surplus Cars—All Cars	Surplus Cars—Coal Cars	Car Shortage	
Jan. 20, 1923	26,485	6,699	75,189	37,518
Jan. 13, 1923	28,282	6,155	73,342	37,014
Same date in 1922	396,192	183,399	.....	.....

Foreign Market And Export News

Demands for British Coal Increasing; Production Slightly Lower

British coal production for the week ended Jan. 20 was 5,585,000 tons as compared with 5,605,000 tons the previous week, a decrease of 22,000 tons.

The coal industry in Wales is active and the only factor retarding expansion is the question of working hours at the docks. Between 30 and 40 ships are daily unable to secure docking facilities in order to load.

French, Italian and South American demands are increasing. American tonnage has been obtained for transporting 245,000 tons of Welsh coal to the United States.

During the week ended Jan. 12 there were 437,429 tons of coal exported from Cardiff and Newport to the following countries:

	Tons
France	157,343
Italy	66,002
South America	82,720
Spain	25,534
Portugal	12,513
U. S. A.	20,097
British coal depots	41,914
Other countries	31,306
Total	437,429

The effect of the Ruhr occupation on the North English market has been an urgent demand for supplies. The collapse of the mark and the break in the French and Italian exchanges have made business difficult to transact and worry attaches to the fulfilling of orders.

The Swedish State Railways have contracted with Newcastle merchants for 69,000 tons of coal, made up of Northumberland, Durhams, and Scottish.

Export Clearances, Week Ended Feb. 3

FROM HAMPTON ROADS

For	Tons
Nor. SS. Songelv, for Puerto Tarafa	3,517
For Cuba:	
Nor. SS. Albatros, for Havana	5,004
Dan. SS. Phonix, for Havana	2,478

FROM PHILADELPHIA

For Cuba:	
Amer. SS., Lake Ellicott, for Havana, Cuba	

French Coke Market Active

The occupation of the Ruhr so far has had no influence on the market for French coals, except as regards coke. However, the Saar coal field, which was shipping a good part of its production to Germany probably will divert a portion of these shipments to French destinations.

From Jan. 1 to Jan. 16, inclusive, French blast furnaces have received through the Société des Cokes de Hauts-Fourneaux 174,300 tons of German coke. Coke received before Jan. 16, however, had left the Ruhr before the occupation. On the 16th alone the quantity of coke received was only 4,600 tons.

The interruption in the shipments of German coke resulted in inquiries for French, Belgian and British coke.

French coke ovens have accepted orders to supply to the Société des Cokes de Hauts-Fourneaux 38,000 tons of coke per month at 107 fr. at ovens in the Nord and Pas de Calais and at 112 fr. at ovens in the center of France. Coking slacks, on the other hand, are being sold at 72 fr. in the Nord and Pas de Calais and at 80 fr. in the central coal fields.

United States December Coal Exports

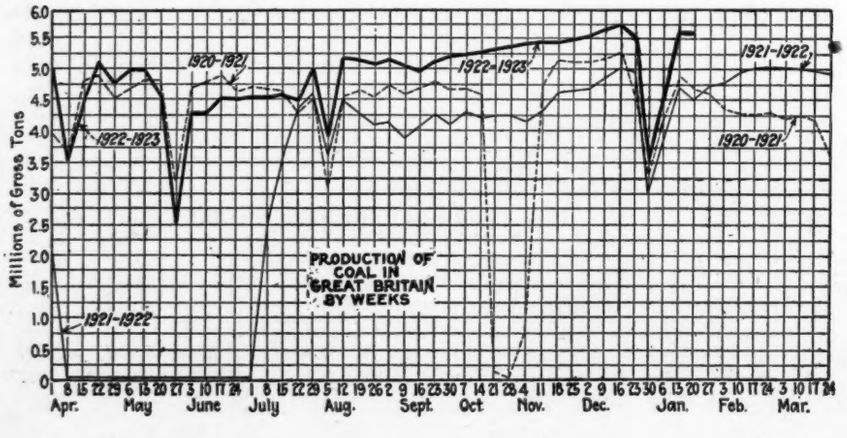
(In Gross Tons)

Coal:	Dec., 1921	Dec., 1922
Anthracite	306,277	381,758
Bituminous	770,092	1,468,917
Exported to:		
Canada	621,993	1,376,089
Panama	9,678	4,975
Mexico	6,637	8,710
British West Indies	5,627	70
Cuba	53,262	64,065
Other West Indies	11,940	10,644
Argentina	22,384	.....
Brazil	12,492	.....
Chile	1,067	2,181
French Africa	6,902	.....
Egypt	11,631	.....
Other countries	6,479	2,183
Coke	23,034	123,442
Briquets and other compositions	.....	1,293

Demand at Hampton Roads Slow

Business was dull at Hampton Roads in the face of a falling market brought on, shippers report, through lack of demand due to better car movement and to heavy stocks laid up against a probable April 1 strike of miners which is not now regarded as likely to take place. Movement to New England fell off, although general shipping brought bunkers up to a high plane.

Prices ranged around a figure that makes the prospect for export business brighter. Shippers were keenly interested in the Ruhr developments, having in mind the possibility of entering the foreign market in case Germany's supply of coal is cut off.



United States December Coal Exports by Custom Districts

(In Gross Tons)

	Anthracite	Bituminous	Coke
Maine and New Hampshire	10	44	118
Vermont	1,325	942	1,196
Connecticut	.....	30	.....
St. Lawrence	143,962	261,895	1,257
Rochester	34,444	55,852	54
Buffalo	187,583	387,836	85,545
New York	9,147	103	1,231
Philadelphia	4,202	11,632	1,032
Maryland	.....	11,060	.....
Virginia	.....	49,951	.....
South Carolina	.....	8,230	.....
Florida	.....	1,257	2,127
Mobile	.....	1,344	32
New Orleans	.....	1,239	2,562
San Antonio	31	46	.....
El Paso	116	3,665	659
San Diego	.....	25	.....
Arizona	40	3,872	5,630
San Francisco	92	928	19
Washington	.....	1,859	.....
Dakota	355	3,407	2,203
Duluth & Superior	77	7,469	3
Wisconsin	.....	100	.....
Michigan	76	204,148	18,673
Ohio	130	451,983	799
Massachusetts	18	.....	.....
Porto Rico	150	.....	4
Georgia	.....	.....	298
Totals	381,758	1,468,917	123,442

Hampton Roads Pier Situation

	Jan. 25	Feb. 1
N & W piers, Lamberts Pt.		
Cars on hand	953	1,090
Tons on hand	68,515	77,921
Tons dumped for week	106,648	90,007
Tonnage waiting	6,650	2,200
Virginian Ry. piers, Sewalls Pt.		
Cars on hand	1,439	1,440
Tons on hand	87,020	83,480
Tons dumped for week	104,147	83,908
Tonnage waiting	10,000	10,000
C. & O. piers, Newport News		
Cars on hand	1,850	1,470
Tons on hand	103,290	80,590
Tons dumped for week	80,489	107,088
Tonnage waiting	200	89,015

Pier and Bunker Prices, Gross Tons

PIERS

	Jan. 27	Feb. 3†
Pool 9, New York	$7.75@$8.25	*$7.50@$7.75*
Pool 10, New York	7.25@ 7.50	*6.75@ 7.00*
Pool 11, New York	6.00@ 6.50	6.00@ 6.50
Pool 9, Philadelphia	7.65@ 8.00	7.65@ 8.00
Pool 10, Philadelphia	7.10@ 7.35	7.10@ 7.35
Pool 11, Philadelphia	6.60@ 6.75	6.60@ 6.75
Pool 1, Hamp. Roads	8.25	*7.50*
Pools 5-6-7 Hamp.Rds.	8.00	*7.25*
Pool 2, Hamp. Roads	8.25	*7.50*

BUNK

Pool 9, New York	$8.10@$8.60	*$7.85@$8.10*
Pool 10, New York	7.60@ 7.85	*7.10@ 7.35*
Pool 11, New York	6.35@ 6.85	6.35@ 6.85
Pool 9, Philadelphia	8.25@ 8.60	8.25@ 8.60
Pool 10, Philadelphia	7.40@ 7.60	7.40@ 7.60
Pool 11, Philadelphia	6.90@ 7.15	6.90@ 7.15
Pool 1, Hamp. Roads	8.25	*7.50*
Pool 2, Hamp. Rds.	8.00	*7.25*

Current Quotations British Coal f.o.b. Port, Gross Tons

Quotations, by Cable to Coal Age

	Jan. 27	Feb. 3†
Admiralty, large	29s.@30s.	29s.6d.@30s.
Steam, smalls	20s.@20s.6d.	*20s.*
Newcastle:		
Best steams	26s.6d.@27s.6d.	**27s.6d.@35s.**
Best gas	25s.@26s.	**26s.@28s.**
Best bunkers	25s.	**25s.@27s.6d.**

† Advances over previous week shown in **heavy** type; declines in *italics*.

News Items From Field and Trade

ALABAMA

The Empire Coal Co., Empire, is about **to construct 40 byproduct ovens** in Walker County near some of the company's holdings, as well as railroads to the undeveloped territory of the company, surveys for which have been made. Walter Moore, of Birmingham, president of the company, estimates that the improvements will cost approximately $1,500,000.

There are 1,196 byproduct coal ovens in Alabama with a yearly capacity of 6,543,000 tons of coal and 4,750,000 tons of coke, according to official figures. Alabama now ranks fourth in the number of ovens and capacity. The byproduct coke capacity was increased in 1922 by the addition of 25 Koppers ovens at the Alabama By-Products Company and 30 Koppers ovens for the Woodward Iron Co.

The Bird Coal & Iron Co., Birmingham, has instituted suit in the courts of Talladega County against the Kuhara Mining Co. and Alexander Tison, of New York, for the recovery of the Talladega furnace property and about 6,000 acres of coal and iron properties in St. Clair and Etowah counties. The properties were acquired by the Bird company about six years ago and leased in 1919 to the Kuhara company, a Japanese corporation, title being vested in Alexander Tison, the lease of the Kuhara company alleged to be for a sufficient period to enable the manufacture of 70,000 tons of pig iron. The original owners are seeking possession of the property and damages for the use of the plant and equipment.

The Stith Coal Co., which has several drift openings at Aldridge, on the Southern Ry., in Walker County, is sinking a 400-ft. shaft to the Black Creek seam, which underlies the America seam, now being worked.

COLORADO

The Mine & Smelter Supply Co., with branches in Denver, Salt Lake City and El Paso, has taken over exclusive representation for the States of Colorado, Utah, Nevada, Wyoming, New Mexico and western Texas for Wilson Plastic-Arc Welders and Wilson Color-tipt Welding Metals.

The lignite output is steadily increasing in the northern field around Erie and Frederick if shipments by Union Pacific are to be taken as a definite indication. An average of 150 cars a day has been reaching Denver, 80 per cent of which stays in that city's territory and the balance is routed eastward as far as Omaha. This road has recently hauled as many as 177 cars a day to Denver. Burlington loadings in the field also are heavy.

Harry F. Nash, vice-president and general manager of sales of the **Alamo Coal Co.**, which has been incorporated in this state, expects to be shipping coal from the Alamo mine by June, 1923. "There is yet much to be done," he says. "A stretch of railroad four miles long must be built to connect the new property with the end of the Loma spur of the Denver & Rio Grande Western, already extending sixteen miles north of Walsenburg; a 600-ft. rock slope must be driven to open up the coal; a 2,500-ton tipple must be purchased, fabricated and erected. Mr. Nash, J. H. P. Fisk, an engineer of Walsenburg, and E. H. McCleary have charge of this construction work. Mr. McCleary is general manager of operations, W. B. Lewis, president; Harry F. Nash, vice-president and general manager; A. S. Pratt, treasurer; George C. Manly, assistant treasurer and counsel, and Howard Willets, comprise the directorate. Mr. Lewis, Mr. Nash, Mr. Pratt and Mr. McCleary occupy the same positions with the Oakdale Coal Co., operating at La Veta. Like the Oakdale, the Alamo will be a strictly domestic mine; it is hoped that the Oakdale record can be equaled—not a single car of run-of-mine coal has been shipped in ten years; the whole output has been sold in prepared sizes. "The new mine is the result of ten years' search for as good a domestic fuel as Oakdale," says Mr. Nash.

Core drilling of the 640-acre, 10,000,000-ton tract has been completed. When the log of the drill showed a depth of 640 ft., a 7-ft. seam was encountered. Sixty-five feet deeper the drill discovered an 11 ft. bed. The coal beds will be exploited through a slope on a 36-per cent inclination conforming to the dip of the coal. The method of mining will not be determined until the main slope has penetrated the coal some distance, when conditions will be better known. The panel system—driving rooms level and panel entries on the pitch, gathering with hoists—is being seriously considered. The mine is to be as up to date as modern equipment and modern methods can make it, underground and on the surface. A tipple, including rotary dump, shaking screens, loading booms and box-car loaders for two tracks, and a rescreening plant have already been designed. Five hundred kilowatts of power-plant capacity will be built as a starter.

CONNECTICUT

The Associated Company, of Hartford, maintaining a corps of inspectors for mines carrying workmen's compensation, has **equipped all its underground men with the new M. S. A. self-rescuer.** The self-rescuer protects the wearer from asphyxiation and afterdamp from explosions and fires. Incidentally, the state mine inspectors of West Virginia also are being equipped with this apparatus.

ILLINOIS

The J. W. Peterson Coal Co., Chicago, has increased its capital stock from $5,000 to $300,000.

The Citizens Coal Mining Co., Springfield, has made a stock dividend of 650 per cent, basing this stock issue on accumulated surplus and undivided profits. The company increases its capital from $60,000 to $300,000.

What is said to be the **largest coal mine electric power contract** ever entered into in Illinois has just been signed at Chicago by the **Central Illinois Public Service Co.** and the **Old Ben Coal Corporation.** The Central Illinois company will supply the entire power requirements of the coal company, which operates twelve of the largest coal mines in Illinois. Three of these mines shipped six million tons of coal last year. The contract is for ten years and the electricity bill of the Old Ben Coal Co. will amount annually to half a million dollars. The Central Illinois Public Service Co. will have an aggregate of 73 mines being operated by electricity obtained from the company, thus making this company one of the largest coal-mine power companies in the United States.

A. R. O'Dell, sales manager for the J. K. Dering Coal Co. of Chicago is spending two weeks in the Northwest developing trade.

The **Ernest Coal mine**, known as **Franco No. 2** at Harrisburg, recently **broke its hoisting record** when 3,301 tons of coal were hoisted in eight hours. The record is 200 tons over the previous record of the mine and is considered good, inasmuch as the cars used underground at this mine are of only 2-ton capacity, while other mines in the district use from 3- to 5-ton mine cars. **Mine No. 2** of **Big Creek Coals, Inc.**, near Ledford, also recently hoisted 2,363 tons in one day's work, which makes a new mark for this plant. The mine is well known also under the name of the Steel Tipple Mine.

Work has been begun upon **installing two new cages at the Peerless Coal Co.'s** mine at Springfield. The old cages were demolished when they crashed to the bottom of the pit. A broken sheave wheel caused the accident.

The Conveyors Corporation of America, Chicago, has acquired from the Green Engineering Co., East Chicago, Ind., all rights to the **Green steam jet ash conveyor.**

George W. Gosnell, Herrin, formerly county mine inspector for the Twelfth district, comprising Williamson and Johnson counties, **has been appointed state mine inspector** by Governor Small. He succeeds W. L. Morgan, Greenville, recently named state mining investigator.

A reorganization in the Nason coal interests was completed Dec. 30, 1922. All mining and field operations were consolidated under the name of the **Illinois Coal Corporation**, and the capital was increased from $1,000,000 to $10,000,000. The name was changed from the Illinois Coal & Coke Corporation Dec. '26 and the **Nokomis Coal Co.** merged with the corporation. The **Nason Coal Co.**, of Chicago, continues to be the selling company.

Fire recently caused a loss estimated at from $15,000 to $20,000 at the mine of the **Randolph Mining Co.**, at Coulterville. The flames originated in the wash house of the plant and before they could be checked had completely destroyed the boiler house and engine room, which were located near the wash house. Over 100 men are employed at this mine, most of whom will be idle until the destroyed buildings have been rebuilt.

Messrs. Hartshorn and Norman, of Danville, who are identified with the **Hartshorn Coal & Mining Co.**, with headquarters in that city, recently spent some time at Elkville, the location of their new slope and strip operations. The concern recently acquired large tracts for mining purposes near Elkville and are rapidly completing the work of setting up machinery, building tracks, etc., preparatory to producing coal. The company will operate both slope and stripping operations and will employ several hundred men when running full capacity. With the work progressing as it now is, it is expected that coal will be hoisted in from 60 to 80 days.

The Chain Belt Co., Milwaukee, announces the appointment of **Fitch S. Bosworth** as manager of the Chicago office. Mr. Bosworth has been in charge of the Chain Belt Co.'s St. Louis office for the last three years and has specialized on chain and conveying engineering problems. With him will be associated **Raymond X. Raymond**, who for several years has been connected with the export sales department in Milwaukee. **Thomas F. Scannell**, formerly of the Chicago office, has been placed in charge of the St. Louis office.

INDIANA

The Madison Mining Co. at Crown Point has filed a preliminary certificate of dissolution with the Secretary of State.

Production of mines in the Indiana field is averaging about 50 per cent of normal. Many of the mines are operating only two or three days a week, but others, especially in the Fourth vein, have operated almost full time. Mines in the northern part of the field have had better work since the first of the year than in any other part of the district. Some mines have had idle days because of car shortage, but the greatest detriment is lack of demand.

Miners in Indiana would not be required to qualify with a local board in each county where they work under the provisions of a bill recently introduced in the Indiana General Assembly. The bill seeks to repeal the miners' license law passed in 1911, which provides that any applicant for work in a mine must undergo an examination by a board of three members. Two members of the board can be named by the local labor organization in the county, under the law, and the other is an operator. Representative Isaac H. Hull, of Laporte and Starke counties, in introducing the bill said that although the 1911 act was passed ostensibly to protect miners against injury by refusing work to those not physically qualified to work, in actual effect it prevented men from working who were not members of labor organizations.

A. E. Bradshaw, formerly president of the National Building Supply Dealers' Association, and now head of the Allied Coal & Material Co., of Indianapolis, one of the largest retail coal and material supply companies in Indiana, has been named chairman of the retail committee of the Indianapolis Chamber of Commerce.

Fuel conservation problems were discussed by 150 power-plant managers and engineers who met recently at Purdue University, Lafayette, the object of the conference being to promote economy in the use of fuel in power plants. Professor G. A. Young, of Purdue, said that the nation never would be as great as its resources justified until the consumption of coal had been reduced and a greater amount of energy produced from a given consumption of fuel. R. H. Gardner, superintendent of the Northern Indiana Gas & Electric Co., said that large central power stations were more economical than a number of small plants and that centralization should be encouraged for the sake of fuel economy.

The erection of the first coal washery in Indiana is still under consideration by the J. K. Dering Coal Co., of Chicago, for its No. 8 mine at Clinton, where the company is operating in the No. 3 seam, a very difficult coal to prepare properly, but the plans have not been approved largely because of the initial cost, which would be in the neighborhood of $300,000.

IOWA

J. L. Coombes, formerly mining engineer at Lynch mines, Kentucky, is now located at Cedar Rapids, and is engaged in construction business.

KANSAS

Eight diamond core drills and one standard drill are testing the territory three miles west of Oswego for coal. A new mammoth power plant is going up on the river and excavating is almost completed.

KENTUCKY

The Pond Creek Coal Co., acquired recently by Henry Ford and his associates from T. B. Davis and his associates, **will hereafter be known as the Banner Fork Coal Corporation,** that being the name of the company under which the Ford mines in the Hazard Kentucky field are operated. Edsel B. Ford is president of the Kentucky corporation.

The Kentucky & West Virginia Power Co., of Logan, W. Va., is preparing to expend $750,000 in enlarging its plant and in constructing about 125 miles of high tension line to the Hazard field of Kentucky.

Thirty-five miles of railroad connecting Harlan County, Kentucky, and Lee County, Virginia, **is to be constructed by the Southeastern Ry. Co.,** according to articles of incorporation filed Jan. 16 at Frankfort by that company. The new line will connect with the Southern Ry. near the west of Keokee, Va., and with the Louisville & Nashville on Clover Fork. The company is capitalized at $500,000 with L. O. Pettit, Big Stone Gap, Va., as president; W. A. Hahn, Norfolk, Va., vice-president; J. F. Bullitt, Jr., Big Stone Gap, secretary, and C. R. Carver, Norfolk, treasurer. Headquarters of the company will be at Big Stone Gap.

Press reports state that the Democratic party in Kentucky is planning to run **John E. Buckingham,** of Ashland, as a business man for governor of the state. Mr. Buckingham is a big operator, who for years has been connected with the John C. C. Mayo Consolidation, Elkhorn Coal Corporation and other interests.

Good rises in the Ohio, Kentucky and other rivers of the state is resulting in coal movement opening again, as there is no ice in the rivers, and the water is at the best boating stage of some weeks. The Pittsburgh Coal Co., of Louisville; Dugan Coal Co., Slider Coal Co. and others are anticipating shipments. The Inland Waterways Co. has been moving considerable tonnage in from Kentucky River mines.

MASSACHUSETTS

The coal shortage in Massachusetts is practically over, according to figures presented recently by James J. Phelan, Emergency Fuel Administration for the state. Except for one week, since mining was resumed, production of anthracite has shown a substantial increase over that of 1921.

MINNESOTA

A survey of the coal situation through Minnesota has been published with statements of coal supplies from about one-third of the counties of the state, representing all directions. Almost without exception, hard coal is reported very short or totally exhausted, and soft coal is sufficient for the remainder of the winter. In the timber district, wood has helped out and in the west considerable lignite has been used.

E. E. Heiner, of the Superior Coal & Dock Co, has been in Duluth recently inspecting the company's enlarged dock there. Mr. Heiner asserts that the improved handling facilities made **the dock the fastest at the Head of the Lakes.**

Charles Beuglet, sales manager for the Northwestern Fuel Co., has left Duluth for a month's stay in Florida.

Ivan Bowen, **State Fuel Administrator,** has submitted a report to Governor Preus, in which he **recommends state control of the fuel trade** through a system of licensing, and a supervision of grades. According to the report, fuel should be sold by **grades** based on heat units, not on weight. A bill is suggested to cover this, and would provide that the governor might declare an emergency which would give power to supervise, regulate and control receipt, storage, purchase, sale, use, distribution and delivery of fuel. The railroad and warehouse commission would have power to examine all books of the various coal companies and ascertain where all coal was delivered, investigate prices by all concerned.

MISSOURI

Stewart-Thill Co. is the new name of the Walter L. Flower Co., of St. Louis, district representatives of the Conveyors' Corporation of America, Chicago. The personnel of the organization remains the same.

The Wickham Coal Co. at St. Louis has liquidated and quit. In 1897 E. F. Wickham organized this firm and was succeeded at his death by W. F. Wickham. In its day it was a factor in the movement of big tonnages. Ill health forced W. F. Wickham to retire. He is in California for the winter.

W. F. Heinecke, prominent in retail and jobbing circles in St. Louis, is in Florida on a two months' vacation for his health.

The Federal State Crop Reporting Service for Missouri reports from Jefferson City for 1922 that Missouri farmers estimate that 72 per cent of their fuel for 1922 was wood and only 28 per cent coal. They figure on using 14 cords of wood during the season at $3.40 per cord, or $3.10 when cut stove length. The farmers who bought coal nearly altogether a few years ago, when the price was reasonable, have now gone back almost entirely to wood.

Missouri branch of the United Mine Workers of America has elected the following officers: President, Arch Helm; vice-president, James Colley; secretary and treasurer, George Hepple. Andres Steele, of Novinger, was renamed as national board member. A. G. Llelwellyn, of Novinger, was chosen sub-district board member to succeed L. E. Medlin, of Kirksville.

Carl Hirdler, traffic manager for the Wallace Coal Co., is spending a three months' health trip at St. Petersburg, Fla.

MONTANA

The mine of the **International Coal Co.,** Bearcreek, has been taken over by a new corporation known as the **Carbon County Coal Co.,** of which Merrill Nibley of Salt Lake City, Utah, is president. McCandles Moffitt is in active charge of the mine. Mr. Nibley formerly was general manager of the Utah-Idaho Sugar Co. Mr. Moffitt was employed by the American Fuel Co. of Utah and later by the Standard Coal Co. of the same state. The International mine has been closed down for some time, but Mr. Moffitt is rapidly reconditioning it.

NEW JERSEY

At a special meeting Jan. 26 of the Board of Directors of the **Taylor-Wharton Iron & Steel Co.,** High Bridge, **Percival Chrystie** was elected president to succeed the late Knox Taylor. Mr. Chrystie was formerly vice-president and has been acting president since Mr. Taylor's death.

NEW YORK

At a meeting of the board of directors of the **Coal & Iron National Bank of the City of New York** held Jan. 25, John T. Sproull was elected chairman of the board of directors, resigning the office of president. Mr. Sproull was one of the organizers of the bank in 1904, since which time he has acted as president. Julian W. Potter was elected president, effective Feb. 1. Mr. Potter is a Southern banker who came to New York from Bowling Green, Ky., where he was vice-president of the American National Bank.

In transporting anthracite **the railroads have surpassed by more than 18 per cent, their record last year.** Robert S. Binkerd, vice chairman of the Committee on Public Relations of Eastern Railroads, declared Feb. 1 in making public a letter to Health Commissioner Copeland, taking issue with Dr. Copeland's statement that the coal shortage in New York City was due to the inability of the carriers to move coal as a result of the railroad shopmen's strike. Mr. Binkerd gave out figures from the U. S. Geological Survey, showing that since the resumption of mining on Sept. 11, 1922, up to and including Jan. 20 of this year, the anthracite-carrying railroads had handled 36,052,000 tons of coal as against 30,517,000 tons in the corresponding period of 1921-1922.

Wages of longshoremen loading coal in the Port of New York have been increased from $6 a day to $6.50 a day in the new contract between the coal handlers and the Coal Merchants' Association. The longshoremen based their demand on higher cost of living and the merchants admitted their request was reasonable and granted it without argument.

Coal truckmen of New York City who have been doubling and trebling legal rates to peddlers, who in turn passed the increased cost along to consumers have been warned by State and City Fuel Administration officials that continuation of this practice will bring prosecution. Seventeen alleged offenders were summoned to General Goethals' office to answer to complaints received by the State Fuel Administrator that they had **increased their rates from the legal $1.50 a ton to $3 and $4 a ton,** and that the peddlers passing this increase along to private customers, the public was the sufferer from the truckmen's illegal practices. The truckmen were questioned by General George W. Goethals, State Fuel Administrator; C. W. Wickersham, counsel to the administration, and Administrators Eltz for Manhattan and Foster for the Bronx.

Pilling & Co., Inc., announce the election of Frank J. Herman, manager of coal sales, and Ralph W. Clark, manager of pig iron sales, as directors, effective Jan. 1, 1923. During the past few months Pilling & Company, Inc., has expanded its coal selling organization greatly. A Johnstown, Pa., office was opened Oct. 1, in charge of Charles S. Martin. Bruce N. Stimets and J. B. McGolrick (who was formerly with Karm Terminal) are serving the northern New Jersey coal buyers. W. T. Miller, until recently with Pardee Brothers, is selling for them in New York State and is making his headquarters in Utica. The company also expects to open a Boston office within a short time.

Senator Mortimer Ferris, of Plattsburg, tried unsuccessfully Feb. 1 to have the Senate adopt a resolution calling to the attention of the State Fuel Administrator the assertion that coal is being shipped through New York State to Canada, where it is delivered to **customers who are willing to pay $20 and $25 a ton** at the mines. Senator Ferris' resolution would have called upon the Fuel Administrator to impound such coal and distribute it at reasonable prices in New York.

William Fellows Morgan, president of the United Hospital Fund, announced that several of the hospitals in New York City are **considering abandoning the use of coal and substituting oil** for fuel. A saving of from 20 to 30 per cent can be effected, it is believed.

OHIO

George H. Merryweather, of the Waubon Coal Co., of Chicago, secretary of the American Wholesale Coal Association, and **I. C. Cochran,** managing director of the same organization, visited Columbus wholesalers Jan. 31 and were **entertained at luncheon** at the Chittenden Hotel. About two score were present and the question of organizing a closer association of wholesalers and producers and possibly retailers was taken up. A committee consisting of P. A. Coen, W. J. Hamilton, Jay Miller and M. L. Yuster was named to devise ways and means for the organization. It was decided by the committee to revive the noonday luncheon and later organize a coal association which would have for its members all of the coal industry. The question of making reports to the U. S. Coal Commission was discussed at the open meeting and reports showed that some jobbers had refused to make the reports desired. It was the consensus of opinion that the reports should be made in order to help the investigation of the Coal Commission.

E. M. Long and his two sons have **purchased three operating mines and 152 acres of coal lands** and six miles of spur track from the Short Creek Coal Co., Cadiz. The consideration was in the neighborhood of $3,000,000. The mines have a production capacity of 85,000 tons yearly.

The Southern Ohio Pig Iron & Coke Association held its annual meeting at Ironton, Jan. 24. The primary object was to get the views of the members on the coal question, with the idea of presenting the case of steel and furnace operators having their own coal mines, coke plants and cars, before the U. S. Coal Commission. After a lengthy discussion it was felt that little could be gained by this movement, and the discussion reverted to how best to insure a regular supply of good quality coal for coking and other purposes.

PENNSYLVANIA

In an opinion by Justice Simpson, the State Supreme Court on Jan. 29 **affirmed** the judgment of the Court of Common Pleas of Schuylkill County **denying an in-**

junction in the suit of Calvin Pardee and about forty other coal-land owners to have the county and the county commissioners enjoined from sitting as a board to "revise, raise and equalize the valuation of all property" returned by the local tax assessors. This decision means that the attack on the method has been ruled out, without prejudice to appeals from specific valuations on their merits.

For a consideration of $46,000 the entire rights of the Dolph estate to the **coal under the land in a 60-acre tract in the Borough of Olyphant have been surrendered to the Hudson Coal Co.**, the deed having been filed Jan. 29. The indenture was executed on Dec. 19, 1922, between the officials of the company and the owners of the land. The land under which the coal rights were sold is bordered on the north, south, east and west by property of the coal company. With the coal rights, the company purchased freedom from all claims for "negligent mining or negligent preparation of coal."

The Tri-District Board of the United Mine Workers of America in the anthracite fields **has decided to maintain a lobby committee at Harrisburg**, made up of one member from each district and as many more as may be necessary. It will also wage a fight against the movement started in Philadelphia to repeal the miners' certificate law, and will ask that it be extended to the bituminous fields.

William L. Connell, of Scranton, has been granted a leave of absence of six months from his duties as chairman of the Anthracite Conciliation Board. W. W. Inglis, president of the Glen Alden Coal Co., has been selected by the operators of District No. 1 to represent them on the board during his absence.

P. S. Gardner, of New York City, has taken over the old Neilson colliery at Shamokin, which has not been operated for a number of years. J. G. Hayes, of Scranton, is general manager.

The Monroe Coal Co., operating at Revloc, Cambria County, **gave prizes to its miners as an incentive to stimulate coal production during December.** Six watches were offered on a basis of merit to the best heading man, best room loaders and best cutters and scrapers. George Kirkis and Wisel Smalley won first and second prizes as room loaders, they loading 259 and 245 tons, respectively. The first prize to a heading man was won by Philip Cevallers, whose yardage for the month netted him wages amounting to $366.64 and a prize watch. John Yulius won second with a yardage which netted him $360.64 and a watch. The cutters and scrapers worked in pairs and John Yenovitch and Vincent Blaznick carried off the prizes and a nice return in wages, their aggregate output being 3,539 tons. Six suits of clothes will be awarded for the month of January.

Seward E. Button, former state mine chief under the Sproul administration, has been appointed **general superintendent of the Temple Coal Co.**, with headquarters at Scranton. Before becoming state mine chief Mr. Button was in the Temple service.

A bill has been introduced in the Senate at Harrisburg by Senator W. I. Stineman, Cambria County, "to protect bituminous coal miners in the determination of the amount of coal to be used as a basis for calculating wages." The measure provides that any miner shall be entitled to receive or, failing to receive, then **to collect by due process** of law at such rates as may have been agreed upon **full and exact wages for the mining of all merchantable coal he mines.** Seventy-six pounds is deemed one bushel and 2,000 lb. net as a ton. All cars must be uniform in capacity at each mine and no unbranded cars are allowed to enter a mine for longer than three months without being branded by the mine inspector. Violation of this provision subjects the owner to a fine of $1 a car for each day the car is unbranded. The bill also provides that at every bituminous coal mine where coal is mined by weight or measure the miners may employ a checkweighman or checkmeasurer who is to be given access to the mines and shall not be considered a trespasser. A fine of $20 to $100 is provided for violations of this provision.

Senator Berntheizel **has offered a bill in** the State Senate **repealing the act of May 25, 1921, creating a state board for the registration of professional engineers and land surveyors.** The bill has gone to the Judiciary General Committee.

Before the embers of the Chauncey breaker, destroyed by fire Jan. 27, were extinguished, George F. Lee, president of the George F. Lee Coal Co., had given the **contract for a new breaker** to E. E. Reilly, of Kingston, and undertook **to resume production in 90 days.** The breaker, at Avondale, was found on fire Sunday morning by repairmen. The fire began at the top and was so far advanced when discovered that extinguishers were not effective. About 400 tons of coal in the bins were destroyed. The burned breaker was of wooden construction, was electrically operated, and had a daily capacity of about 1,000 tons.

Representative Wilson G. Sarig, Berks County, minority leader of the House, has introduced a bill **to repeal the anthracite tax law** of 1921. The repealer is brief, merely quoting the title of the tax law and providing that it be repealed. The measure is one of the Democratic bills agreed to by the minority members at caucus as their legislative program.

SOUTH DAKOTA

The Homestake Mining Co., of Lead, which probably is the greatest operating gold mine in the world at the present time, has acquired a considerable acreage of coal land near the Shields mine at Gillette, where a model town site has been laid out and arrangements made for opening in the spring a stripping operation.

TEXAS

C. W. Osborne, of Dallas, president and manager of the O. K. Lignite Co., has made arrangements to develop 600 acres of coal land near Garrison. The company is now making arrangements to install a hoisting engine and small boilers, as well as mine cars, and it is estimated that the daily output will be five carloads.

UTAH

It is expected that the **International Mine Rescue and First-Aid Convention** will be held in Salt Lake City this summer.

The coal industry of Utah has a representative in the Legislature. He is **John E. Pettit**, superintendent of the Panther mine of the U. S. Fuel Co. in Carbon County. Mr. Pettit is a member of the House of Representatives. He has been state coal mining inspector twice.

VIRGINIA

W. N. Westerlund, assistant manager of the Norfolk office of Hasler & Co., has gone to New York to take charge of the office there. Richard Hasler has come to Norfolk from the New York office to fill the vacancy made by the transfer of Mr. Westerlund.

The Steinman Coal Co., of Steinman, whose post office address is Tandy, Va., has perfected an incorporation with a capital of $300,000. The following officers have been elected: President, James H. Steinman, Lancaster, Pa.; secretary, Whitney C. Faulkner, Richmond, Va.

WEST VIRGINIA

With the transfer of the records in the murder trial of C. Frank Keeney, president of District 17, United Mine Workers of America, from Jefferson County to Morgan County, all arrangements for the **beginning of the case, Feb. 20**, have been completed. It is scheduled to start on Feb. 20. The state will have about 125 witnesses and the defense about 75.

The Monongah Fuel Co., having recently acquired a large tract of coal land adjacent to its present mine on Kuhn's Run, in the Marion County field, **has completed plans for the installation of a plant with a capacity of between 1,500 and 2,000 tons a day.** The contract for the installation of electrical equipment, including substation, was awarded to the Fairmont Electric Service Co. The fuel company expects to install three 75-kw. 222,000-volt to 2,200-volt transformers, 100-kw. motor generator set, 25,000-volt switch, 25,000-volt lightning arrester, one steel substation tower. The apparatus will be of the Westinghouse type. The Monongah Fuel Co. has as its head David Victor, who is also general manager.

Shaker-screen equipment of the most modern type **was recently installed at the Eureka Mine** of the Consumers' Fuel Co., Randall, near Morgantown, by the Fairmont Mining Machinery Co., Fairmont. The Eureka Mine, which is one of the Bertha Coal Co. interests of Pittsburgh, Pa., now has a rating of sixty-four cars per day and with the new equipment it is hoped to develop a rating of one hundred cars daily. The Bertha Coal Co. is planning to install shaker-screen equipment at most of its large operations this year with a view of doubling production in 1923.

The Cumberland Iron Works, of Westmoreland, near Huntington, which has been operating only about three months, has been awarded a contract by the Ford coal interests for the manufacture of **several hundred mine cars for the Nuttallburg mine,** near Thurmond, in the New River field at which new machinery is being installed throughout.

WISCONSIN

A. W. Berresford has resigned as vice-president and director of the Cutler-Hammer Co., Milwaukee. Mr. Berresford's request to be released was based entirely on personal consideration. Arrangements have been made whereby his services become available in specific matters.

CANADA

Trouble between operator and employee persists in some of the fields of Alberta. The mines in and around Edmonton, it is stated by the operators, are all working with full crews and without complaint. At a recent meeting, however, it was admitted that the present situation was unsatisfactory to the public because of the expenditure by the city for police protection. On behalf of the operators it was stated that no objection would be offered to workers joining the United Mine Workers. An official of the Edmonton Trades and Labor Council declared that there were some 12,000 miners in the province of Alberta of whom about 10,000 were union men. Completion of the organization, he said, would result in the stabilization of the industry, which was what the miners wanted. Statements followed from a number of the operators. The sentiment was strongly favorable to making every possible effort to arrive at a basis for an amicable settlement of the issues in dispute.

WASHINGTON, D. C.

Bids are solicited for the transportation of one cargo of 4,000-6,500 tons of Navy coal from Hampton Roads, Va., to the Navy Supply Depot, South Brooklyn, N. Y., in vessel of **American registry.** The loading date at Hampton Roads will be between Feb. 17-20, both inclusive. Tenders will be opened at noon Feb. 12.

The Chamber of Commerce of the United States has announced the appointment of **A. B. Barber**, of Portland, Ore., **as manager of the chamber's department of Transportation and Communication.** He succeeds J. Rowland Bibbins, who resigned to take up private engineering practice.

The U. S. Supreme Court has **declined to issue a writ of certiorari sought by the S. H. Benjamin Fuel & Supply Co.** to review the decision by which it lost a suit against the Bell Union Coal & Mining Co. in which breach of contract for delivery of coal had been alleged, thus permitting the decisions of the lower courts to stand. As presented by attorneys for the Benjamin company the question involved was: "Where there is a contract for the sale of goods with instalment deliveries, each instalment to be paid for on a specific date after each delivery, does the failure of the buyer to pay an instalment promptly on the date due give the seller the right to cancel the contract unless the buyer's failure, coupled with other circumstances, indicates an intention on the part of the buyer to breach or abandon the contract or shows his inability to perform the same?" The Benjamin Company entered into a written contract with the Bell mining company in April, 1920, to purchase 25,000 tons of 2-in. screenings and 25,000 tons of prepared coal, to be delivered in equal monthly shipments from May, 1920, to April 1, 1921, at $2.50 per ton for the screenings and $3.50 per ton for the prepared coal. The Benjamin company alleged that only a small part of the shipments were made in May, June and July, and that in August the Bell company canceled the contract, alleging failure to pay on time. The Benjamin company declared that its payment for June delivery, due July 15, was mailed by check July 19 and that the delay was due to inability to get exact weights from the mine in Union County, Kentucky. The price of coal advanced steadily and rapidly in the summer of 1920 and in September the Benjamin company filed suit in the U. S. district court for eastern Pennsylvania, seeking judgment of $300,000. There was a second contract for delivery of 25 carloads, of which 9 carloads were delivered, and on this contract a jury gave the Benjamin company $2,016. The Court instructed the jury that as to the larger contract the Benjamin company had breached the contract by failure to pay on time. The Circuit Court of Appeals sustained this and now the Supreme Court has declined to review the case.

Traffic News

A report on the condition of locomotive equipment just filed by the Pennsylvania R.R. with the Car Service Division of the American Railway Association shows that on Jan. 1, 1923 **nearly 80 per cent of the road's locomotives were in good order.** Out of 7,249 steam locomotives on the system, the percentage of all classes out of service for repairs was only 21.44. On Jan. 1, 1923, fewer locomotives requiring heavy repairs were out of service than on Jan. 1 a year ago. In the same period the out put of the company's shops increased to such an extent that the number of freight cars requiring repairs was reduced to about 7 per cent of the cars on the line. Fewer freight cars were out of service under and awaiting heavy repairs on Jan. 1, 1923, than on Jan. 1, 1922.

The Montana Coal & Iron Co. has filed with the I. C. C. exceptions to the proposed report of Attorney-Examiner M. A. Pattison, in what is known as the "Western Coal Rate" case (Docket 13588). The report recommends many revisions in the rates on anthracite and bituminous coal from mines in New Mexico, Montana, Wyoing, Colorado and other western states. Hearings were held in many western cities and extended over several months.

Authority has been granted by the Interstate Commerce Commission to the Van Sweringen group of Cleveland, which now controls the New York, Chicago & St. Louis R.R. and other lines in the Middle West, **to take over control of the Chesapeake & Ohio** by assuming seven places on its board of directors. O. P. Van Sweringen and six of his associates, who recently announced they had acquired a majority of the common stock of the Chesapeake & Ohio, may now become directors of that railroad, and will control seven out of nine votes upon the board. Commissioner Eastman dissented from the commission's action, but all other members of the commission approved the order. M. J. Van Sweringen, J. J. Bernet. Otto Miller, J. R. Nutt, C. C. Bradley and W. A. Colston are the others permitted by the order to go on the board.

Preliminary action has been taken by several companies operating in smokeless territory and served by two railroads **to annul the recently adopted rules and regulations governing the rating of mines known as joint-service mines.** Parties to such an action are the New River Coal Co., the White Oak Fuel Co., Stuart Colliery Co., Dunloop Coal & Coke Co., Beckley Coal & Coke Co., Mabscott Coal & Coke Co. and the Cranberry Fuel Co. These companies have filed suit in the U. S. Court for the southern district of West Virginia against the Chesapeake & Ohio Ry., the Virginian Ry., the United States of America and the Interstate Commerce Commission. The plaintiffs in this case seek to have the new rule which prohibits joint service mines from receiving 150 per cent car supply set aside and annulled. Heretofore, mines in a position to ship by two roads have been entitled to a 75 per cent car supply from each road as against a 100 per cent rating for mines shipping one way. The first hearing on the case was held at Richmond, Va., on Feb. 6.

Association Activities

Northeast Kentucky Coal Association

The fifth annual meeting of the Northeast Kentucky Coal Association held at Ashland, was one of the most successful and most largely attended in the annals of the association, 85 per cent of the tonnage of the district being represented. All of last year's officers were re-elected as follows: C. W. Connor, of Esco, president; E. R. Price, of Van Lear, first vice-president; E. L. Bailey, of Hellier, second vice-president; George B. Archer, of Prestonburg, treasurer; C. J. Neekamp, of Ashland, secretary.

Many subjects of vital interest were discussed, among the most important being that having to do with car supply. J. D. Battle, traffic manager of the National Coal Association, in an address stated that the Interstate Commerce Commission had approved in principle the mine-rating rules recently proposed by the joint conference of operators and railroad officials and that the carriers and the operators will carry out the suggestions made by the conference.

At the banquet of the Ashland Chamber of Commerce given in honor of visiting operators, over which John E. Buckingham presided as toastmaster, a number of officials of the Chesapeake & Ohio Ry. were present and made brief addresses, among them being F. M. Whitaker, vice-president in charge of traffic; J. B. Parrish, general manager; E. D. Hotchkiss, freight traffic manager. Another prominent railroad official present was W. G. Curren, general superintendent of transportation of the Baltimore & Ohio, who pointed out the steps being taken by his company toward bettering transportation conditions. J. D. A. Morrow, former executive vice-president of the National Coal Association, discussed the trend of radical legislation, and Lawson Blenkinsop, chief of the State Department of Mines, addressed himself to the efficient operation of mines. President C. W. Connor, of the association, spoke of the rapid development of the Big Sandy region and of the certainty of further development in view of the quality of coal produced in the region.

Monongahela Coal Association

At the annual meeting of the Monongahela Coal Association held in Morgantown on Jan. 12, largely attended by members, officers were elected and directors chosen. Operators on the Monongahela River between the Pennsylvania State line and Fairmont on the south constitute the membership of this association The new roster of officers includes: John Hay Johns, of Pittsburgh, Pa., president; E. H. Gilbert, Morgantown, vice-president; J. B. Hanford, Morgantown, treasurer. In the list of directors chosen were B. M. Chaplin, Morgantown; Whitney Warner, Cleveland; W. H. Soper, Morgantown; A. O. Davis, Uniontown; Robert Grant, Boston, Mass.;; George S. Connell, Connellsville; Samuel D. Brady, Fairmont; Vincent E. Gocke, Clarksburg; R. N. Davis, Morgantown; Dr. W. R. Mitchell, Morgantown, and W. E. Watson, Fairmont. Mr. Watson was president of the association last year.

Obituary

Rastus S. Ransom, Jr., president of the Ransom Engineering Company of Hazleton, Pa., a graduate of Colorado School of Mines, Class of 1913, was accidently killed while cleaning his revolver on the afternoon of Jan. 18. Funeral services were held from his late home in Hazleton. Interment was in Rosedale Cemetery, Orange, N. J. After his graduation he practiced his profession in Utah and Colorado. In 1915 he returned to the East and became interested in research work and invented a new type of coal jig which he manufactured and was meeting with marked success in the Pennsylvania coal fields. He was a member of the American Institute of Mining Engineers. He is survived by his wife and a daughter.

William P. Waugh, consulting engineer for the H. H. Robertson Co., of Pittsburgh, and known from coast to coast through his development of skylights and the solution of ventilation problems for many of the country's greatest industrial plants and public buildings, died at his home at Sewickley, Pa., on Jan. 15. He is survived by his wife and two daughters.

Frederick Schwaim, formerly head of the F. Schwaim Coal Co., Sioux City, Ia., died Jan. 13 at his home in Sioux City. He was born in Germany, May 2, 1848. He came to the United States at the age of seventeen and first lived in Champaign, Ill. In 1887 he located in Sioux City and for years had been identified with the coal trade there, retiring fifteen years ago.

Henry Melville Whitney, known as one of the greatest captains of industry of his time, died at his home in Brookline, Mass., Jan. 25, at the age of 84 years. Until his retirement several years ago from active affairs he was an international figure as capitalist and transportation magnate. As organizer of the Dominion Coal Co., from which grew the present coal and iron industry of Cape Breton, N. S., it had been said of him that "no American ever did more for Canada."

Western Kentucky operators, jobbers and many consumers have heard with regret of the death of **A. C. Lackey**, of Nashville, Tenn., on Jan. 29, death being due to asthma, from which he was a chronic sufferer. Mr. Lackey was president of the Douglas Coal Mining Co., western Kentucky; the Phoenix Coal Mining Co., which he just recently acquired, also in western Kentucky, and the Dixie Fuel Co., jobbers, with offices at Louisville, Nashville and Chicago. Louisville was the headquarters of the two mining companies. Mr. Lackey is survived by his wife, a daughter and a son.

Coming Meetings

Northern West Virginia Coal Operators' Association will meet Feb. 13 at Fairmont, W. Va. Secretary, G. S. Brackett, Fairmont. W. Va.

American Institute of Mining and Metallurgical Engineers will hold its annual meeting Feb. 19-22, 1923, at the Engineering Societies Building, New York City. Secretary, F. F. Sharpless, New York City.

International Chamber of Commerce will hold its second general meeting in Rome, Italy, March 19-26.

American Society for Testing Materials will hold its annual meeting at the Chalfonte-Haddon Hall Hotel, Atlantic City, N. J., beginning June 25 and continuing throughout the week. Secretary, E. Marburg, Philadelphia, Pa.

The Colorado & New Mexico Coal Operators' Association will hold its annual meeting June 20 at Denver, Col. Secretary, F. O. Sandstrom, Denver, Col.

National Foreign Trade Council will hold its annual conference April 25-27 at New Orleans, La.

Pittsburgh Vein Operators' Association will hold its annual meeting Feb. 12 at the Hotel Cleveland, Cleveland, Ohio. Secretary, D. F. Hurd, Cleveland, Ohio.

The Upper Potomac Coal Association will hold its annual meeting Feb. 10 at Cumberland, Md. Secretary, J. F. Palmer, Cumberland, Md.

Northwestern Pennsylvania Coal Operators' Association will hold its annual meeting March 6 at the William Penn Hotel, Pittsburgh, Pa. Secretary, T. F. Diefenderfer, Butler, Pa.

Canadian Institute of Mining and Metallurgy's annual meeting will be held March 7, 8 and 9 at the Mount Royal Hotel, Montreal, Quebec, Canada. Secretary, George C. Mackenzie, Montreal, Quebec, Canada.

The Electric Power Club's annual meeting will be held at the Homestead, Hot Springs, Va., Dec. 11-14. Executive secretary, S. N. Clarkson, Cleveland, Ohio.

Indiana Bituminous Coal Operators' Association will hold its annual meeting March 14 at Terre Haute, Ind. Secretary, P. H. Penna, Terre Haute, Ind.

National Foreign Trade Council will hold its annual conference May 2-4 at New Orleans, La. Secretary, O. K. Davis, 1 Hanover Square, New York City.

American Institute of Mining and Metallurgical Engineers, New York Section, will hold its annual meeting at the Chemists' Club, 52 East 41st St., New York City, Feb. 14. The subject will be: Present Anthracite and Bituminous Coal Situation. Secretary, E. L. Gruver, 20 Broad St., New York City.

Southern Appalachian Coal Operators' Association will hold its annual meeting Feb. 23 at Knoxville, Tenn. Secretary, R. E. Howe, Knoxville, Tenn.

The executive board of the **Coal Mining Institute of America** will meet in Pittsburgh, Pa., Saturday, March 3.

The Gas and Fuel Section of the American Chemical Society is arranging a second sectional meeting at the New Haven meeting of the American Chemical Society during the first week in April. The section program will consist of papers on gas and fuel chemistry and a symposium on motor fuels, held jointly with the petroleum division.

The eleventh annual meeting of the Chamber of Commerce of the United States will be held in New York City May 7-10. Meetings of the National Council will be held morning and afternoon of the first day for nomination of directors. Seventeen directors are to be elected for a term of two years each. On the mornings of May 8, 9 and 10 and on the afternoon of May 10 there will be general sessions devoted to the subject of "Transportation in All Its Phases in the United States." On the evening of May 8 a general session will be devoted to European conditions from the American viewpoint, and in the afternoon there will be group meetings on civic development, domestic distribution, fabricated production and finance. On the afternoon of May 9 there will be group meetings on foreign commerce, insurance, natural resources, production, and transportation and communication.